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ABSTRACT

Described is a project to determine the effectiveness in increasing educationally handicapped (EH) and educable mentally retarded (EMR) student achievement using a taxonomically based curriculum keyed to the experiential taxonomy, a taxonomy which deals with human activity from a gestalt perspective. Following an introductory chapter, Chapter II provides background on the experiential taxonomy and lists the taxonomy's categories (which include exposure, participation, and identification). Outlined in Chapter III is the development of the goals, objectives, activities, texts and concrete materials, and evaluation components of five curriculum areas: mathematics, reading, spelling, communication skills, and social development. Chapters IV and V report on procedures and findings of the study to determine the effectiveness of the curriculum in terms of student achievement with EH and EMR students ranging in age from 6 to 14 years. Appended are curriculum goals, a table on the curriculum, a student record definition table, sample tests for each area along with sample evaluation and record sheets, and tables giving descriptive statistics. (SBH)

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MEASURING EXPERIENCES THROUGH THE EXPERIENTIAL TAXONOMY

A Research Study in

Special Education

by

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June 1976

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CHAPTER I

In recent years many educators have expressed a need for taxonomically-based curriculum which could be effectively used in the classroom. The Cognitive Taxonomy, the Affective Taxonomy, and the various psychomotor taxonomies have provided the format and a theoretical basis for developing taxonomically-based curriculum, but there has been a lag between the theoretical model and actual classroom usage.

In addition from a theoretical base, there was no taxonomy which dealt with human activity from a gestalt perspective. Each of the taxonomies previously mentioned emphasized particular elements of human activity rather than including hierarchically a deepening taxonomy of the totality of an experience.

With these two concerns as an impetus for development, work on the Experiential Taxonomy began. Norman Steinaker and Robert Bell of the Ontario-Montclair School District developed the experiential taxonomic sequence which was published in the January 1975 issue of Educational Technology. Succeeding articles including "A Model for Developing Classroom Experiences through the Experiential Taxonomy" (1975), "An Evaluation Design Based on the Experiential Taxonomy" (1976), and "How Teachers Can Use the Experiential Taxonomy" (1976) were prepared and published which gave a more complete theoretical base for the taxonomy and its use in the classroom.

Considerable national and international attention was focused on the taxonomy, its development and its implications in classroom teaching and counseling. Inquiries

about the taxonomy came from the medical field, from psychology, counseling, and penology as well as from numerous educators. In essence, people were saying from many fields that there was a need for such a taxonomy.

As one aspect of our response to this wave of inquiries and requests for information, Project "MEET" (Measuring Experiences through the Experiential Taxonomy) was submitted to the California State Department of Education and was funded. We felt that there was a great need in Special Education for taxonomically-based curriculum and for use of the taxonomy in other aspects of Special Education as noted below. In developing the project our research question was "Using the Experiential Taxonomy as a basis for assessment and evaluation, what are those elements of an EMR and EH district instructional and curriculum program which are most successful in achieving effective student learning in terms of identified pupil and program variables?". Our rationale for submission of the project were:

1.0 There are no standards either statewide or district for evaluation of these programs.

2.0 Evaluation presently used in district emphasize academic progress and differ little from regular instructional program except for difficulty in pacing.

3.0 Children within these classes vary greatly from one another in strengths and limitations related to learning modalities and styles (students in programs exhibit behavior indicating they may have some modes of learning blocked because of neurological or physiological reasons).

4.0 Although psychologists fulfill Educational Code requirements in identifying and formulating educational plans for these students there are inherent weaknesses

in differential diagnosis performed and in communicating these diagnoses to the classroom teacher for implementation.

5.0 In reviewing district programs where there is an emphasis placed on hands-on learning activities and other real life experiences there has been a minimum opportunity for evaluation of the effectiveness of these experiences in terms of student learning and further to identify effective variables within these experiences.

We further added to our rationale by stating:

"Educators have in recent years based instructional strategies, curriculum development, and pupil assessment and evaluation on various existing taxonomies of educational objectives, most notably the Cognitive and the Affective. While these are appropriate bases for such development, they do not deal with the teaching-learning process as a total human experience. We posit that effective instructional strategies and assessment evaluation instruments can be developed using the Experiential Taxonomy as a basis for development. With this gestalt approach to the teaching-learning process we feel that the Experiential Taxonomy will provide teachers with a more effective and useful basis for developing teaching strategies and assessment instruments than do the Cognitive, Affective and other extant taxonomies."

Our first task was to develop a staff and we were able to obtain the services of Marilyn Harrison as Research Associate. During July and August, a curriculum model was developed and when school began we, with the assistance and support of project teachers, used the model to develop curriculum based on the Experiential Taxonomy and the project was implemented in the schools. The process of implementation

and the results are discussed later in this report.

The Experiential Taxonomy, around which this project was developed, is a taxonomy which teachers can understand and use. Both project teachers were enthusiastic about the format and the potential of the Experiential Taxonomy as an organizing basis for curriculum. Other district curriculum, in addition to Special Education, notably in Career Education and multicultural education, have been developed. District teachers have expressed great interest in and support for the taxonomy as a curricular organizer.

Further refinement of the curriculum model to include learning styles and modes, teaching strategies, levels of critical thinking, and a taxonomically-based evaluation system is in process and curriculum material based on this revised model has been developed. The development of this new curriculum model was, in large part, a result of this study.

The rationale for the project was to determine the effectiveness in increasing EH and EMR student achievement using taxonomically based curriculum keyed to the experiential taxonomy. Appropriate instrumentation to accompany curriculum was developed to assess psychological characteristics and achievement levels of special education students.

CHAPTER II

The taxonomy itself, on which this research project as well as other curriculum is based, accepts the definition of experience as "an actual living through of an event or events". For purposes of this report, we are including excerpts from the article "A Proposed Taxonomy of Educational Objectives: The Experiential Domain" published in Educational Technology, January 1975.

Webster defines experience as "an actual living through of an event or events". This is a succinct and workable definition of experience, but let us be more specific. An experience, though it cannot be abstracted and isolated, does have identity and continuity. For example, a person can on reflection, cite stimuli from which he or she became conscious of the possibility of an experience. One can also trace activities within the scope of an experience which sequentially brought about his participation, identification, internalization, and finally dissemination of that experience. Experience can further be either positive or negative. A person can react to or respond to an experience positively or negatively. Whatever the reaction may be, one can move from exposure to dissemination. We have all heard or have been a part of a negative dissemination of experience. In effect, as one considers experience, the result at the level of dissemination is immaterial. We are, therefore axiologically neutral.

The question of differentiating a vicarious experience and an experience in which

one is physically involved may arise. In our view there is no difference between these kinds of experience. We are gestalt creatures and our mental and physical selves cannot be differentiated or separated. One has only to turn to the creative process. When involved in the creative process the individual can move from exposure to dissemination. Emily Dickinson in four brief lines succinctly confirms this:

I never saw a moor,
I never saw the sea,
Yet know I how the heather looks
And what a billow be.

In this taxonomy we accept the ontological position that all experience is real to the one who actually lives "through an event or events." We reject any ontological position which tends to define reality as certain kinds of experience. In essence there is no difference between a vicarious experience and an experience in which one is physically involved.

With this in mind one does not need to concern himself with a definition of an experience as real or vicarious or even as fantasy. Rather a teacher can address himself to whichever category of the Experiential Taxonomy a person is reflecting at a particular time and plan additional activities which will enhance the experience or change the direction of the experience. An experience, therefore, can be defined as an hierarchy of stimuli, interaction, activity, and response within a scope of sequentially related events beginning with exposure and culminating in dissemination. Experience can be positive or negative and can extend through dissemination or it can terminate or be terminated at any level in the taxonomy.

With this definition of experience in mind we propose the following as a Taxonomy

of Experience, or to relate it specifically to education, a Taxonomy of Educational Objectives: The Experiential Domain.

CATEGORIES OF THE EXPERIENTIAL TAXONOMY

1.0 Exposure: Consciousness of an experience. This involves two kinds of exposure and a readiness for further experience.

1.1 Sensory: Through various sensory stimuli one becomes exposed to the possibility of an experience.

1.2 Response: Peripheral mental reaction to sensory stimuli. At this point one rejects or accepts further interaction with the experience.

1.3 Readiness: At this level one accepts the experience and anticipates participation.

2.0 Participation: The decision to become physically a part of an experience. There are two levels of interaction within this category.

2.1 Representation: Reproducing an existing mental image of the experience, mentally or physically or both, i.e., visualizing, verbalizing, role playing, dramatic play. This can be done in two ways.

2.1.1 Covertly: as a private personal "walk-through" rehearsal.

2.1.2 Overtly: in a small/large group, interaction, i.e., the classroom or playground.

2.2 Modification: The experience develops with the input of past personal activities and the experience grows. As there is a personal input into the participation one moves from role player to active participant.

3.0 Identification: As the participant modifies the experience, the process of identification with the experience begins. There are four levels of activity within this category.

3.1 Reinforcement: As the experience is modified and repeated there is a reinforcement of the experience involving a decision to identify with the experience.

3.2 Emotional: The participant becomes emotionally identified with the experience. It becomes "my experience."

3.3 Personal: The participant moves from an emotional identification to an intellectual commitment which involves a rational decision of identification.

3.4 Sharing: Once the process of identification is accomplished the participant begins to share the experience with others as a positive factor in his life. This kind of positive sharing continues through category 4.0 (internalization)

4.0 Internalization: The participant moves from identification to internalization when the experience begins to affect the life-style of the participant. There are two levels in this category.

4.1 Expansion: The experience enlarges into many aspect of the participant's life. He changes attitudes and activities as a result of the experience. When these become more than temporary the participant moves to the next category.

4.2 Intrinsic: The participant's life-style becomes characterized by the experience and that character remains more constant than at the expansion level.

5.0 Dissemination: The experience moves beyond internalization to the dissemination of the experience. It goes beyond positive sharing which began at level 3.0 and involves two levels of activity.

5.1 Informational: The participant seeks to stimulate others to have an equivalent experience through descriptive and personalized sharing - (advertising).

5.2 Homiletic: The participant sees the experience as an imperative for others to have.

It should be noted that the categories of this taxonomy are stated in positive terms, while as noted earlier, an experience can bring forth either positive or negative reactions. For the purposes of educational planning we feel a positive statement of categories is essential. A teacher seldom, if ever, purposefully plans experiences in which learners are expected to react negatively.

CHAPTER III

DEVELOPMENT

Overview

Development

Curriculum guidelines, notably "A Course of Study for the Educable Mentally Retarded" and the "San Bernardino Guide of Basic Competencies for Educable Mentally Retarded", provided examples as to the scope and depth of coverage to give in each curriculum area. From the curriculum areas selected for the project, broad goals were then developed.

Two curriculum models provided additional assistance in developing objectives for the selected goals. One model was the Comprehensive Coordinated Curriculum for Special Education (Santa Cruz, 1972). The other model was the Special Education Management System (Monterey County, 1970).

Of special help in the Santa Cruz curriculum model was the Behavioral Characteristics Progression component. For each identified behavior, this component developed a strand of progressive skills starting at an elementary level and culminating at an advanced level for the particular behavior or skill.

Following the above curriculum guidelines and models, objectives for the selected project goals were developed into a progression of skill levels.

Basis

In addition to curriculum guidelines and models, several taxonomies (Steinaker and Bell, 1975; Bloom, 1956; Krathwohl, 1964) provided a basis for defining an hierarchical instructional unit for each goal. The Experiential Taxonomy (Steinaker and Bell, 1975) was the actual framework followed for the study. But the Affective (Krathwohl, 1964) and Cognitive (Bloom, 1956) taxonomies provided examples to follow in the keying of behavioral objectives to a taxonomy. It was the Experiential Taxonomy framework upon which hierarchical learning experiences for each project goal were developed.

Objectives and activities for each goal were developed to coincide with each taxonomic level of the Experiential Taxonomy. These taxonomic levels progressed from an entry level to mastery of a particular skill and goal. These taxonomic levels of a skill, in turn, suggested necessary and appropriate teaching behaviors and instructional materials to use in order to ensure that a learning condition closely paralleling real life experiences exist for each student.

Components

In developing this curriculum project, five stages or components were considered. These components were: goals, objectives, activities, texts and concrete materials, and evaluation. The five integral components were viewed as providing a comprehensive curriculum. Each component is defined and discussed.

Goals. Goals are those broad statements of intended student achievement resulting from the instructional program. An example of a goal is that the student adds whole numbers. Broad goals, or missions, were stated for each of the five curriculum areas developed as well as for units within those curriculum areas. These broad goals are

similar to the goals found both in the State Department of Education Curriculum Guidelines (California Area VI, 1967) and in the San Bernardino County Schools Office Curriculum Guide for Special Education Students (Guide of Basic Competencies, 1973). Within some of the broad goals, other goals were nested in ascending complexity, suggesting an instructional hierarchy for student progression in the mastering of the entire broad goal.

Objectives. Objectives are specific developmental skills to be achieved by each student in each curriculum unit. Here, objectives were keyed to the five levels of the experiential taxonomy. There were at least two objectives for each level of the taxonomy.

Objectives are further specifications or operational definitions of goals. In relation to their corresponding goal, objectives are specifically stated in developmental or behavioral terms. They have both a referent or learning context and explicit student behavior to be demonstrated (Bloom, 1956 p. 204-207). An example of a student objective is: the student will watch the teacher demonstrate the correspondence of numerals to pictures. The student behavior is: watch, and the referent is: the teacher demonstrate the correspondence of numerals to pictures. Further, behavioral objectives provide the basis for an evaluation of the student program in terms of each objective.

Activities. The activity component is concerned with the instructional experiences or activities designed to facilitate the achievement of those goals and specific objectives. An example of an activity is: teacher discusses the correspondence between objects and numbers. In this project, activities, like all other components

of the curriculum, necessarily followed the hierarchy of the experiential taxonomy. Such experiences were designed to begin with student exposure to the skill or concept to be learned and culminate with student demonstration of mastery and dissemination of the skill.

Text and Concrete Materials. In order to implement many activities, text and concrete materials must be provided. In this study, they were listed according to the nested goals following the taxonomic hierarchy. Texts included primarily state adopted or state approved textbooks. Teachers in California have ready access to these textbooks.

Concrete materials include manipulative objects that a teacher or student uses. Such materials might include cuisenaire rods, blocks, vocabulary cards, cardboard clocks, examples of dictionary pages, among many others. Most concrete materials are items which often are easily obtained or quickly constructed by a teacher or student. Materials used in the curriculum were also listed according to nested goals following the taxonomic hierarchy.

Evaluation. The evaluation component comprises a method of acquiring and processing the evidence needed to improve the student's learning and the teaching process (Bloom, 1971). Both formative and summative types of evaluation were included.

The formative evaluation phase of the curriculum project consisted of Student Weekly Reports and Summary Reports.

The Student Weekly Report was completed at the end of each week by the teacher. Included in the form were instructional and student performance information

in each of the five curriculum areas.

The Summary Report summarized the information contained in the Student Weekly Report by curriculum area. Weekly instructional and student performance information was summarized for the 15 weeks in each subject area. Instructional and student performance total values were calculated as well.

As to the summative evaluation phase, standardized tests and evaluator-developed instruments were used.

Principles

Comprehensiveness. This curriculum development project provides for a comprehensive curriculum ranging from broad goals through specific objectives to instructional activities and materials designed to facilitate student achievement. Components of the curriculum project include goals, objectives, activities, text and concrete materials for the activities, and an evaluation phase for determining curriculum effectiveness.

The purposes for developing a comprehensive curriculum are several. First, all components are essential in modeling steps in the instructional process. Teachers can easily become familiar with the curriculum and its purpose, and they then are able to implement it smoothly in their classroom. Second, the curriculum components detail the sequential steps of instruction in meeting individual student needs. Third, complete component specifications are a basic requirement for curricular evaluation.

Interrelationships Among Components. Another principle upon which curriculum was based was the development of an integral relationship among goals, objectives,

activities and texts and materials. Each component influences or reinforces every other component. Activities are not ends in themselves. A sufficient and necessary condition for an activity to be meaningful is that it is specifically developed from an objective. The net result is a strongly integrated curriculum providing a carefully planned instructional program for each student.

Instructional Sequencing. Instructional sequencing is another principle upon which the curriculum was established (Steinaker and Bell, 1975; Bloom, 1973; Gagne, 1967). Instructional sequencing refers to the small hierarchical steps in the instructional sequences leading toward mastery of a specific objective. Each step allows as much time as is necessary for mastery before the student progresses to the next sequential level in the hierarchy. Mastery of each hierarchical step provides the entry level skills for the next instructional level. With careful monitoring of the progression through sequential levels, assurance is provided that a student does not inadvertently miss any step in the instructional process nor move too rapidly without mastering the skills at each level. Mastery at each level of the curriculum provides continual feedback of student achievement to the teacher. Student knowledge of achievement helps motivate the student to continue to master the learning tasks at hand.

With instructional sequencing, each special education student's curriculum is individually prescribed according to his or her needs.

Mode of Teaching. A fourth principle was that of maximizing options for teaching style and instruction. A teacher should be able to effectively use the

curriculum when teaching the entire class, a small group of students, or an individual student. And the curriculum should provide instructional activities ranging from teacher introduction of a concept, teacher-student interaction, to independent student practice, reinforcement, and mastery of the concept. With multiple instructional styles, the needs of the special education student may more fully be addressed.

Determination of Effectiveness. The fifth and final principle concerned the need to determine curricular strengths as well as weaknesses. Evaluation is needed to ensure that strong points and weak points of the curriculum are detected.

To determine achievement of instructional objectives, it is essential that a project curriculum contain experimental evaluation components, including formative and summative types of evaluation (Bloom, 1971). The project had matched control EH and EMR classrooms to the experimental EH and EMR classrooms based upon the time the student spent in the special education classroom. Evaluation would be made between EH classrooms and between EMR classrooms.

2.0 Curriculum

In the first stage of curriculum development, the goals selected in each of the five subject areas were those most often stated as goals of basic skills. Such goals are found in the state mandated curriculum, A Course of Study for the Educable Mentally Retarded (California Area VI, 1967). These same goals are stated also in the San Bernardino County Schools, "Guide of Basic Competencies for the Educable Mentally Retarded" (1973).

To reiterate and expand, some broad goals have goals nested within them which imply an instructional hierarchy. One example is the basic computations goal: addition and subtraction without borrowing or carrying in the tens, hundreds, and thousands position (see Appendix A). The first goal or mission is: Addition in the tens position, then hundreds, and finally thousands. The broad goal of subtraction can be addressed once addition skills are mastered or can be interjected as single goals after mastery of the corresponding single addition goal.

Mathematics

Mathematics Goals. In the subject area of mathematics, goals were divided into four groups according to the different skills to be learned. These groups are: basic computations, decimals, time clock, and fractions (Appendix A). The goal numbers used in this report refer to the goals as numbered in Appendix A. There are five goals within the basic computations of whole numbers. They are: (G 1.1.1) addition and subtraction without borrowing or carrying in the units position; (G 1.1.2) addition and subtraction without borrowing or carrying in the tens, hundreds, and thousands position; (G 1.1.3) addition and subtraction with borrowing or carrying in the units, tens, hundreds, and thousands position; (G 1.1.4) multiplication and division without borrowing or carrying in the units, tens, hundreds, and thousands position; and (G 1.1.5) multiplication and division with borrowing or carrying in the units, tens, hundreds position.

Within decimals, there is only one goal. The goal is: (G 1.2.0) addition and subtraction without, then with, borrowing or carrying in the tenths, hundredths,

and thousandths position.

Time Clock also has one goal. The goal is: (G 1.3.0) to tell time in hour, half hour, quarter hour, ten minute, five minute, and one minute intervals.

For fractions there are three goals. They span: (G 1.4.1) addition and subtraction with common denominators; through (G 1.4.2) addition and subtraction without common denominators; to (G 1.4.3) multiplication and division with, then without, common denominators.

Mathematics Objectives. Objectives for mathematics, as previously state, are further specifications or operative definitions of the corresponding goals. Greater specificity is given for the referent and an explicit definition of the behavior is developed. In the case of objectives for the basic computations goals, behaviors were developed to correspond to the five levels of the experiential taxonomy. In this study there are a minimum of two objectives for each level.

An example of the objectives which correspond to the first basic computations goal, (G 1.1.1) addition and subtraction without borrowing or carrying in the units position, is detailed. A student objective for the first taxonomic level, exposure, is: (Ob 1.1) watch the teacher demonstrate the numeral correspondence to pictures and then to the addition process. In this objective the behavior to be demonstrated is that the student is to watch; the referent is the teacher: that is, the student watches the teacher demonstrate the numeral correspondence to pictures and then to the addition process. (Mathematics Objectives are found in Appendix B.1 and the numbers used in the report correspond to the numbered objectives in Appendix B.1).

To further illustrate, a higher level objective, level four, states that the student: (Ob 4.2) performs a simple addition or subtraction word problem read by the teacher. In this case the behavior of the student to be demonstrated is performs. The referent is word problems read by the teacher. In this instance, the student performs word problems read by the teacher.

Another example within basic computations are objectives for goal five: (G 1.1.5) multiplication and division with borrowing or carrying in the units, tens, hundreds, and thousands position. An objective for taxonomic level two, participation, is that the student will: (Ob 2.1) group objects into decimal pockets to explain the multiplication problem with carrying to the teacher. For this objective, the behavior to be demonstrated is that the student is to group and explain. The referents are: objects and multiplication problem with carrying. That is, the student groups objects into decimal pockets and explains the multiplication problem with carrying using the decimal pockets to the teacher.

A mathematics objective for decimals at the third taxonomic level, identification, is that the student is to: (Ob 3.2) explain the process of adding decimals in the units position without borrowing or carrying to the teacher. In this objective, the student behavior is: explain, and the referent is: the process of adding decimals in the units position without borrowing or carrying to the teacher. A single underline will be used to denote the behavior and a double underline will indicate the referent.

A time clock student objective at the second taxonomic level, participation, is: (Ob 2.1) sets the model clock to tell time at hour intervals. That is, set is the behavior and model clock to tell time at hour intervals is the referent.

The time clock goal (G 1.3.0) is an example of a nested set of goals. Once the student has mastered all objectives in the five taxonomic levels for the first goal, to tell time at the hour interval, the objectives are modified slightly to correspond to the next nested goal in the sequence, to tell time at the half hour. The student objective for that goal at level two is: sets the model clock to tell time at the half hour. For the next nested goal, to tell time at the quarter hour, the level two student objective is: sets the model clock to tell time at the quarter hour. Then the objective is to tell time at ten minute intervals, next at five minute intervals, and finally at one minute intervals.

Mathematics Activities. Activities are instructional experiences designed to facilitate achieving the goals and objectives. Activities were developed to correspond to the five levels of the taxonomy. In this study, there are a minimum of two activities for each level. These two activities represent a minimum set of activities to be used in the classroom. Participating teachers were urged to develop additional activities at any or all of the taxonomic levels to meet each student's needs.

An example of activities related to the first basic computations goal: (G 1.1.1) addition and subtraction without borrowing or carrying in the units position is covered first. Coinciding with the first goal is a level one student objective: (Ob 1.1) to watch the teacher demonstrate the numeral correspondence to pictures and then to the addition process. The activities at level one which follow the above goal and objective are: (A 1.1) teacher presents numerals; (A 1.2) teacher matches numerals to corresponding pictures; (A 1.3) teacher groups quantities together using

numeral and picture, then with numeral alone; and (A 1.4) teacher performs the addition operation first using numerals and pictures, then with numerals alone.

Three activities are presented which correspond to both the fifth basic computations goal: (G 1.1.5) multiply and divide with borrowing and carrying and to the level two student objective: (Ob 2.1) group objects into decimal pockets and explain the problem. These activities are: (A 2.1) teacher and students use decimal pocket board to group objects in pockets to conceptualize multiplication problem with carrying; (A 2.2) teacher and students add groups of objects to obtain total; and (A 2.3) teacher and students use numerals to solve same multiplication problem.

For decimals, the goal is: (G 1.2.0) addition and subtraction of decimals first without, then with, borrowing or carrying in the tenths, hundredths, and thousandths position. A specific student objective, level three, is: (Ob 3.1) performs decimal problem correctly. Level three activities, for that goal and objectives are: (A 3.1) student groups money in decimal pockets to solve addition problem; (A 3.2) student solves addition problem first using decimal board then using numerals; and (A 3.3) student uses numerals to solve addition problem.

The one goal for time clock is: (G 1.3.0) tell time at hour, half-hour, quarter hour, ten minute, five minute, and one minute intervals. A student objective, level two, is: (Ob 2.1) sets model clock to tell time at hour intervals. Correspondingly, level two activities are: (A 2.1) teacher and student use model clocks to point to and identify numerals; (A 2.2) teacher and student tell time to the hour using model clocks; (A 2.3) teacher and student place clock hand to indicate time (to nearest hour) for recess, lunch, dismissal, or other activities; and (A 2.4) teacher and student estimate time to nearest hour when minute hand is in different positions.

The first goal in fractions is: (G 1.4.1) addition and subtraction of fractions without, then with, borrowing or carrying for fractions with common denominators including proper, improper, and mixed. A level one student objective is: (Ob 1.1) observes teacher demonstration of fractional parts of whole.

And an activity for that goal and objective is: (A 1.1) teacher presents pictures and/or objects divided into the fractional part 1/2.

This activity is an example of some activities which are composed of nested activities. These nested activities are hierarchical levels of skill development within the one activity at a particular taxonomic level. In this example, the nested activity is the fraction 1/2, 1/3, 1/4, and 1/5. The procedure for nested activities is for the student to master the first activity, then proceed to the second portion of that activity, and continue in like fashion until all portions of the activity are mastered. At that point the student progresses to the next activity in either the same or next taxonomic level.

With nested goals and activities, it may at times be the case where objectives and activities are modified by nested goals, and activities are modified by nested activities. The activities discussed above illustrate the concept of nested activities.

Mathematics Texts and Concrete Materials. Texts and concrete materials are the next component covered in detail. They correspond to a goal, its objectives and activities. Texts and concrete materials provide instructional material for the teacher and student keyed to nested goals.

To illustrate the relationship of texts and concrete materials to a goal, its objectives, and activities, the first goal in basic computations is d scussed. Again, the goal is: (G 1.1.1) addition and subtraction without borrowing or carrying in the units position.

A level one student objective for the goal is: (Ob 1.1) watches teacher demonstration of numeral correspondence to pictures and then to addition process. Level one activities are: (A 1.1) teacher presents numerals; (A 1.2) teacher matches numerals to corresponding pictures: (A 1.3) teacher groups objects together using numerals and picture, then with numerals alone; and (A 1.4) teacher performs the addition using numerals and pictures, then with numerals alone. Texts corresponding to the concepts of numeral identification and counting are found in teacher's editions of two textbook series. One is Houghton-Mifflin, Book K, page 215, and Book 1, pages 33, 37, 42, 53, 55, 58, and 81. The other is Addison-Wesley, Book 1, pages 59, 60, 61, 62, 63, and 65. Text pages provide instructional ideas for the teacher, teacher-student particpation materials and student practice of the concept. Text materials provide learning materials as well as determine whether a student has mastered the skill.

Several suggested concrete materials which reinforce the concepts of numeral identification and counting include flash cards, beans, and cusennaire rods.

Decimals provide another example of the usage of the texts and concrete materials. The goal for decimals is: (G 1.2.0) addition and subtraction without, then with, borrowing or carrying in the tenths, hundredths, and thousandths position. A level three student objective is: (Ob 3.0) performs decimal addition problem correctly. And the corresponding activities are: (A 3.1) student groups money in decimal pockets to solve addition problem; (A 3.2) student solves addition problem first using decimal board then using numerals; and (A 3.3) student uses numerals to solve addition problem. Texts refer back to the goal, and in this case, a nested goal. The second nested goal then is: addition and subtraction without borrowing or carrying in the hundredths position. Texts keyed to the second

goal and objective are listed. One is Houghton-Mifflin, Book 1, Teacher's Edition, pages 124, 125, and 310; and Book 2, pages 226, 229, 230, 231, 235, and 250. The second is Addison-Wesley, Book 1, pages 60, 61, 158, 216, 217, 230, 258, 300, 301, 320-1, and 322-3; Book 2, pages 69, 88, 160, 168-9; and Book 5, page 261.

Concrete materials for the second goal and objective include Decimal and percentage board, Decimal cross number board, and Dollars and Cents.

A final example of texts and concrete materials correspond to the first goal for fractions. The goal is: (G 1.4.1) addition and subtraction with common denominators. The corresponding student objective at level one is: (Ob 1.1) observes teacher demonstration of fractional parts of whole object. Two of the activities are: (A 1.1) teacher presents pictures and/or objects divided into the fractional parts 1/2, 1/3, 1/4, 1/5 and counts parts to equal the whole, and (A 1.2) teacher demonstrates fractional parts of whole and names those fractional parts.

Texts covering the concept of fractional equivalencies are the following. One is Houghton-Mifflin, Book 1, pages 124 and 165; and Book 2, pages 224, 225, 227, and 228. Another is Addison-Wesley, Book 1, pages 60, 61, and 230; Book 2, page 41; and Book 5, pages 257, 258, 259, and 260.

Concrete materials corresponding to the concept of fractional equivalencies are Fraction line set, Fraction chart, Fraction flannel board, and Fraction wheel.

Mathematics Evaluation. The evaluation component of the curriculum included both formative and summative phases. Formative evaluation consisted of Student Weekly Reports and Summary Reports. These reports provide assessments of student performance in relation to the goals. Here formative evaluation is explained. Summative evaluation

is discussed in Chapter IV under Instrumentation, Section I.5.

The Student Weekly Report was completed at the end of each week by the teacher. The form records instructional and student performance information in each of the five curriculum areas. Instructional information consisted of: (I) total amount of time per week of instruction in each curriculum area, and (2) the count of textbooks and concrete materials used in the instruction of each curriculum area. Student performance in each curriculum area pertained to: (I) achievement ranging from negative, through no progress, to progress: (2) attitude, including negative, neutral, and positive, and (3) self-worth, again, spanning from negative, through neutral, to positive (see the Student Weekly Report in Appendix D.5).

A Summary Report for each goal in the curriculum recorded both the instructional information and student performance data for each of the I5 weeks. With the Summary Report, a long-range perspective was provided to the teacher and the district in order to assess student progress in each curriculum area (see Appendix D.6). Monitoring of the curriculum was conducted during the I5 weeks of implementation by observing in the classrooms.

Since the Student Weekly Reports and Summary Reports are used in each curriculum area, they are explained using the mathematics curriculum. The teacher recorded student informati each week for the four areas of mathematics: basic compuations, decimals, time clock, and fractions. Definitions of the types of information recorded follows.

Total amount of instructional time includes both teaching and learning time for each student each week. In mathematics the total time generally is five hours per week. Texts and concrete materials indicate the total number of each type used. The expected number of textbooks used range from two to five per week. Generally five to fifteen

concrete materials were used. Achievement, attitude, and self-worth were assessments averaged for each of the four mathematics areas. It was expected that assessments in these three areas would indicate student variation, constancy, or progression over time in relation to each subject area in mathematics.

From this information in each of the four mathematics areas, a fifth category, mathematics total, was formed. The total was derived by calculating the average for the information in each mathematics subject area. For instance, total instructional time was the average amount of time spent in: (1) basic computations; (2) decimals; (3) time clock; and (4) fractions. Textbooks and concrete material counts were averaged for: (1) basic computations; (2) decimals; (3) time clocks; and (4) fractions. Achievement was the average of the ratings in each of the four areas. In like manner, attitude and self-worth averages were derived.

Reading

Reading Goals. Reading goals, objectives, activities, and texts and concrete materials will be covered next. Reading goals like mathematics, are divided into four groups according to the particular skills to be learned. These groups are: initial and ending letters and sounds, vowel and consonant sounds, alphabetical sequence, and dictionary usage (Appendix A). Goal numbers refer to the goals as numbered in Appendix A. Goals within the reading area, initial and ending letters and sounds, include: (G 2.1.1) letter identification; and (G 2.1.2) sound identification including hard and soft consonants, consonant digraphs and trigraphs; and ending sounds of s, ed, and silent e.

There is only one goal for vowel and consonant sounds. The goal is: (G 2.2.1)

sound identification of short vowels, long vowels, r-controlled vowels, digraph vowels, diphthong vowels, and silent, hard, and soft consonants.

Alphabetical sequence has two goals. They are: (G 2.3.1) alphabetize letters of alphabet and first letter of words, and (G 2.3.2) alphabetize second and third letters of words.

For dictionary usage there are three goals. They span: (G 2.4.1) syllabication and accent marks; (G 2.4.2) use of guidewords; and (G 2.4.3) use of reference skills.

Reading Objectives. Objectives for reading are discussed for selected reading goals. An example of objectives which correspond to the first goal, initial and ending letters and sounds, (G 2.1.1) letter identification, is provided. A student objective at the second taxonomic level, participation, is: (Ob 2.2) group together selected words having the same initial or ending letter (Appendix B). In this objective the behavior to be demonstrated is that the student is to group together; the referent is selected words having the same initial or ending letter.

An objective for the second initial and ending letters and sounds goal, is: (G 2.1.2) identifies hard and soft consonants, consonant digraphs, consonant trigraphs, and ending sounds of s, ed, and silent e. This goal is another example of nested goals. A student objective for the first of the nested goals at level five , dissemination, is: (Ob 5.1) demonstrates skill in identifying hard and soft consonant sounds to the teacher.

The one goal for vowel and consonant sounds, (G 2.2.1) identification of short vowels, long vowels, r-controlled vowels, digraph vowels, diphthong vowels, and silent hard, and soft consonants, an objective is provided. For the final nested goal, a student objective at level three, identification, is: (Ob 3.2) writes or states words that name the silent, hard, and soft consonants.

For the first alphabetical sequence goal, (G 2.3.1) alphabetize letters of the alphabet and first letter of words, an objective is given. A level two student objective is: (Ob 2.1) alphabetize the letters of the alphabet with teacher guidance.

For dictionary usage, the second goal is: (G 2.4.2) use guidewords and references correctly. A corresponding objective at level five, dissemination, is provided. The student objective is: (Ob 5.1) prepares a chart demonstrating reference skills.

Reading Activities. Examples of activities related to the above reading objectives are detailed below. For initial and ending letters and sounds, the first goal is: (G 2.1.1) letter identification. A student objective, level two, is: (Ob 2.2) group together selected words having the same initial or ending letter. Level two activities corresponding to the goal and objective are: (A 2.1) teacher and students together identify pictures and words which start with the same letter as b; (A 2.2) teacher and students group pictures and words together which have the same initial letter; and (A 2.3) teacher and students identify the same initial letter from a list of words.

For vowel and consonants, the goal is: (G 2.2.1) identification of short vowels, long vowels, r-controlled vowels, digraph vowels, diphthong vowels, and silent, hard, and soft consonants. A level three student objective corresponding to the final nested goal, identification of silent, hard, and soft consonants, is: (Ob 3.2) writes or states words that name the silent, hard, and soft consonants. Activities for that goal and objective follow: (A 3.1) student forms five silent sound word groups, using a series of pictures, then repeats the process for hard and soft consonant sounds; (A 3.2) student writes words for pictures in each sound group and pronounces the sound; (A 3.3) student identifies word and type of consonant sound of word on flash card; and (A 3.4) student lists other

words with the same sound although spelling of sound may vary.

The first goal for alphabetical sequences is: (G 2.3.1) alphabetize letters of alphabet and first letters of words. A student objective at level two is: (Ob 2.1) alphabetize the letters of the alphabet with teacher guidance. Activities coinciding with the goal and objective are: (A 2.1) teacher and student arrange cards with letters of the alphabet on them in alphabetical order; (A 2.2) teacher selects several letters of the alphabet and asks students to indicate which letter comes first, then to alphabetize those several letters; and (A 2.3) teacher and student arrange alphabetically a few simple words using only the first letter in the word.

Of the three goals for dictionary usage, the second is used as an example. The second goal for dictionary usage is: (G 2.4.2) use guidewords and references. A level five student objective is: (Ob 5.1) prepares chart demonstrating reference skills. Activities for that goal and objective are: (A 5.1) student volunteers to explain chart to teacher or members of the class.

Reading Texts and Concrete Materials. Texts and concrete materials for reading are covered for selected reading goals, objectives, and activities. For initial and ending letters and sounds the first goal is: (G 2.1.1) letter identification. A student objective at level two, participation, for the goal is: (Ob 2.2) groups together selected words having the same initial or ending letter. Activities related to this goal and objective are: (A 2.1) teacher and student together identify pictures and words which start with the same letter as b; (A 2.2) teacher and student group pictures and words together which have the same initial letter; and (A 2.3) teacher and student identify the same initial letter from a list of words.

Texts related to the above goal, objective, and activities are listed. Vowel and consonant letters are listed separately in alphabetical order. See Appendix B for the complete listing for each letter of the alphabet. Examples for the letter a are: Lippincott, Book A, page 1, and Croft, Forms A and B, pages 1 and 2. Texts for the letter u are: Lippincott, Book A, page 14, and Croft, Forms A and B, pages 1 and 2. Consonant examples for the letter b include: Croft, Forms A and B, pages 1 and 2, and Sullivan Books Levels 2-7, page 26. Texts for the letter r follow: Lippincott, Book A, page 25, Croft, Forms A and B, pages 1 and 2, and Sullivan, Levels 2-7, pages 29 and 81.

Concrete materials appropriate for identification of the letters a and b are Basic Goals, Number 1, Pages 1-51, Basic Goals, Number 2, Pages 1-22, and Bingo. See Appendix B for the complete listing of concrete materials.

Texts related to the vowel and consonant goal are covered next. The goal is: (G 2.2.1) identification of short vowels, long vowels, r-controlled vowels, vowel digraphs and vowel diphthong. A student objective, at level three, identification, for the final nested goal, sound identification of vowel diphthongs, is: (Ob 3.2) writes or states words that name each vowel diphthong. Coinciding activities are: (A 3.1) student forms word groups using a series of pictures for each diphthong sound; (A 3.2) student writes words for pictures having different diphthong vowels and pronounces the sound; (A 3.3) student identifies word and diphthong sound of word on flash card; and (A 3.4) student lists other words with the same diphthong sound.

Texts to reinforce the goal, objective, and activities follow. Examples of the vowel diphthong oi are found in: Croft, Form A, pages 18 and 20, and Croft, Form B, page 18. Information for the diphthong ou are: Croft, Form A, pages 18 and 20 and Form B, page 18. Information for the diphthong ou are: Croft, Form A, pages 18 and

20 and Form B, page 18; SRA IIa, Brown 6 and 11, Green 4 and 10, Red 3 and 8, and Gold 7; and SRA IIb, Turquoise 3,7, and 11; Gold 8, and 11, and Purple 3, 7, and 11. Texts are listed for diphthong vowels ai, au, and ie as well.

Concrete materials focusing on the vowel diphthong oi are: (1) Vowels (Intermediate) Cassette and Workbook (2) Phonic Analysis (Intermediate). Both are published by Ideal School Supplies.

The first goal for alphabetical sequence is: (G 2.3.1) alphabetize letters of the alphabet and first letters of words. A level two objective is: (Ob 2.1) alphabetize the letters of the alphabet. Activities related to the goal and objective are: (A 2.1) teacher and student arrange cards with letters of the alphabet on them in alphabetical order; (A 2.2) teacher selects several letters of alphabet and asks students to indicate which letter comes first, then to alphabetize those several letters; and (A 2.3) teacher and student arrange alphabetically a few simple words using the first letter in the word. Texts which accompany activities using the first letters of words are: SRA IIa, Gold 3, 4, 8, and 13, and SRA IIb, Red 3, 7, and 11, and Blue 5 and 9.

An example of concrete materials to reinforce the alphabetical sequencing of first letters of words is Building Dictionary Skills, Level 1.

Reading Evaluation. The evaluation component for reading is the same as for mathematics. The Student Weekly Reports and Summary Report forms are identical in each of the five curriculum areas. For this reason, it will not be discussed again. Please refer to the detailed explanation of these evaluation forms under Mathematics, section 2.1.5, of this chapter. Also, complete forms are found in Appendix D.5 and D.6.

Spelling

Spelling Goals. Spelling is the third curriculum area. There is one goal for spelling.

That goal and its objectives, activities, and texts and concrete materials are covered below.

The goal is: (G 3.1.0) to spell initial, medial, and ending vowels and consonants having the same, similar, and dissimilar sounds.

Spelling Objectives. Student objectives at level two, participation, include: (Ob 2.1) examines sound-letter relationships and (Ob 2.2) decides to attempt to spell some of these sound-letter relationships.

Spelling Activities. Level two activities are: (A 2.1) teacher and student name beginning/ending consonant sounds for a group of labeled pictures; (A 2.2) teacher and student name two pictures having the same beginning/ending sound; and (A 2.3) teacher and student name words with the same beginning sound but different ending sound, then the opposite.

Spelling Texts and Concrete Materials. A textbook series by Kottmeyer and Ware provides instruction on the first nested goal: (G 3.1.0) to spell same initial sounds. Specific units in teacher editions are: Book 2, Units 1, 2, 11, 25, 26, and 29; Book 3, Units 11, 14, 16, 17, 27, 29, and 33; Book 4, Units 4, 5, 9, 10, 11, 27, and 32; and Book 5, Units 4, 10, 15, 19, 20, 21, 32, and 33.

Concrete materials for spelling same initial sounds are Word Game, Back to Basics by Webster/McGraw-Hill, and Magnetic letters.

Spelling Evaluation. See the mathematics explanation, Section 2.1.5 in this chapter.

Communication Skills

Communication Goal. Communication skills is the fourth area of the curriculum. The goal, objectives, activities, and texts and concrete materials are discussed.

The one goal for communication skills is: (G 4.1.0) to communicate in manuscript and/or cursive writing using appropriate punctuation, format, and common abbreviations.

Communication Objectives. Student objectives at level two, participation, include: (Ob 2.1) verbalize letters student can identify and (Ob 2.2) trace own name.

Communication Activities. Corresponding activities are: (A 2.1) uses pencil, crayon, or chalk in controlled movements; and (A 2.2) traces shapes using template then written examples.

Communication Textbooks and Concrete Materials. Textbook sources for writing manuscript capital letters starting with tracing are found in the student edition of Noble, Grade 2, pages 9, 12, 14, 20, 21, 22, 24, and 51.

Concrete materials to be used in conjunction with the text by Noble consist of Visible Plastic Letter Guide, Plastic Overlay for Slant, Handwriting Course for Correcting Handwriting Demons, Filmstrip Aid for Handwriting, Learn to Write Letter Cards by Milton-Bradley, and Sequential Development Alphabet Cards.

Communication Evaluation. (See Section 2.1.5 of this Chapter).

Social Development

Social Development Goals. Social Development is the fifth and final area of the curriculum. There are four goals for social responsibility. They are: (G 5.1.0) directed responsibility within the classroom; (G 5.2.0) directed responsibility outside the classroom; (G 5.3.0) non-directed responsibility within the classroom; and (G 5.4.0) non-directed responsibility outside the classroom. Examples of objectives, activities, and texts and concrete materials are given only for the second goal.

Social Development Objectives. Student objectives at level three corresponding to that goal: (G 5.2.0) directed responsibility outside the classroom, are: (Ob 3.1) assume a selected school responsibility; (Ob 3.2) be able to adapt behavior to learn skills of responsibility; and (Ob 3.3) verbalize importance of school responsibility in relation to overall school and classroom organization.

Social Responsibility Activities. Activities corresponding to the goal and level three objectives include: (A 3.1) student observes and works with the selected school personnel involved in carrying out the responsibility; (A 3.2) student and teacher discuss necessary steps to ensure the follow through of the responsibility; and (A 3.3) student verbalizes importance of following through on assigned tasks of responsibility.

Social Responsibility Textbooks and Concrete Materials. Textbooks reinforcing the acceptance of directed responsibility outside the classroom include: About Values, Book 3, page 165; Seeking Values, Book 4, pages 172 and 241; and Sharing Values, Book 5, pages 75 and 245.

Concrete materials to assist in the acceptance of directed responsibility outside the classroom include three films and filmstrips. They are: (1) Getting Along with Others by McGraw/Hill; (2) Beginning Responsibility, Learning to Follow Instructions, primary level, by Coronet Films; and (3) Teaching Children Values, two filmstrips and records for primary and intermediate levels by Educational Act., Inc.

Social Responsibility Evaluation. The evaluation component for social responsibility is the same as that described for mathematics. See mathematics evaluation, Section 2.1.5, for a full description.

CHAPTER IV

RESEARCH METHODS

Design

The design of the study was essentially an experimental one. An experimental design established the necessary conditions to keep all variables on interest constant except the curriculum variables to determine the effectiveness of the curriculum in terms of student achievement. The experimental group of classrooms used the developed curriculum for a designated period of time while the control group of classrooms used any other curricula for the same subject areas.

Procedure

The experimental EH and EMR teachers and their classrooms were selected to participate in the study in the spring of 1975. During the summer months, decisions as to specific curriculum areas to focus on for the study were discussed and reviewed. Suggestions by the State and County curriculum guidelines and by the experimental teachers helped to finalize the selection of specific subject areas and their contents. These subject areas and content were then developed into the curriculum.

Early in September, the control EH and EMR teachers and classrooms were selected to match the experimental EH and EMR classrooms. Student time spent in the classroom was the basis for matching experimental and control EH and EMR classrooms. The study was explained to the control teachers as an attempt to determine

if: (1) a particular type of curriculum contributes significantly to student gain and (2) what student attributes help explain a significant gain, if achieved.

An in-service workshop was held to present and to explain the cirriculum to the experimental group of teachers. Then the curriculum was implemented for a 15 week period by these teachers. During this time period, both the experimental and control teachers taught the same curriculum subjects for a like amount of time each week. The time alloted to instruction in each curriculum area followed the state framework. Only the curriculum instruction differed between the two groups. Experimental teachers used the developed curriculum. (Appendix B).

For both the control and experimental teachers, limits were established for the number of textbooks and concrete materials to be used. For textbooks, one text could be used up to one fourth of the time in a particular subject area and a maximum of five textbooks could be used for one subject area. For concrete materials, a minimum of three concrete materials could be used for one-fourth of the instructional time. Up to fifteen different materials could be used in a subject area for a maximum of one half of the instructional time in a particular curriculum area.

A pre-post test was administered to all four classrooms in the study prior to and at the completion of implementing the developed curriculum. The curriculum was implemented for 15 weeks. The pre-post test consisted of the following sections. One portion of the test was an assessment of skills in reading, mathematics, and communication skills. Another part was a teacher rating scale of student responsibilities. The third portion was a spelling test. The spelling subtest of the Wide Range Achievement Test, WRAT, was used to test spelling.

Additionally, one standardized test, the CTBS, Level B, Form S, was administered to provide baseline data on the students.

During the 15 weeks monitoring of student progress in each subject area was done on a weekly basis by the four teachers. Observations by the evaluator were made in both the experimental and control classrooms.

Population and Samples

Special Education in OMSD includes EH and EMR programs. Within the EH program, two types of classes exist. One type, the learning disability group, LDG, stipulates that an EH student spend one-half of the day or less in the LDG classroom. The second type of program, the special day class, SDC, requires the student to remain in the SDC class at least one-half of the day, if not more.

To place a student in the EH program, two criteria are used. First, the student must have normal or above normal intelligence and, second, have a significant discrepancy between classroom achievement and intelligence. EH students are placed in the appropriate type classroom, LDG or SDC, depending on his or her needs.

The EMR program in designed for those students who are below normal in intelligence. Students remain in their EMR classes most, if not all, of the day.

Criteria for placement in the EMR program requires that a student have a retarded ability or intelligence, develop later than others, and learn at a slower rate. Most often there is not a significant discrepancy between an EMR student's ability or grade placement and his or her achievement in that class. Students remain in their EMR class most, if not all, of the day.

From a population of 36 special education classes in the district, a sample of four classes were selected to participate during the 1975-76 academic year.

Two EMR classes at the junior high level were selected. These EMR classes were matched in terms of the time spent in the class by selecting the SDC type of EH class. Special day classes, SDC, require that students remain in the class at lease one-half of the school day. However, there were only two SDC classes in the district at the inception of this study. Both were included although one class had ten to twelve year old students and the other consisted of six to eight year old students. In the EMR classes students ranged in age from twelve to fourteen years. Thus, the sample consisted of students with ages spanning six to fourteen years.

The teachers of these four classes were men ranging in age from 39 to 56 years. Their total teaching experience spanned from five to 24 years and they had taught from five to 20 years in the area of special education.

All teachers had completed some graduate level education. Their educational level was one to four years of graduate training. Further, all teachers were involved in educational activities including the participation in educational planning and policy sessions, the attendance of conferences, and membership in professional organizations.

Variable Definition

Student variables included in the study represented six domains. These variable sets were: (1) status; (2) home background; (3) learning styles-modes; (4) education;

(5) program; and (6) achievement. Information regarding student variables was obtained from multiple sources including district files, teacher ratings, student weekly reports, a district psychologist, and tests, including both standardized and evaluator-developed tests.

Variables in each of the six domains are detailed below. A complete listing of the variables in found in Appendix C, Variable Record Definition. Descriptive statistics for each variable in provided in Appendix E.

Status

The first student variable domain, status, consisted of three variables: (1) classroom number; (2) experimental or control group; and (3) EH or EMR classroom.

Home Background

The second variable domain, home background, consisted also of three variables. These were: (1) age in months; (2) sex; and (3) ethnicity.

Learning Styles-Modes

Third, the learning styles-modes set included six variables. These were: (1) auditory, the ability to interpret what is heard; (2) visual, the ability to recognize geometric designs, pictures, letters, and words; (3) kinesthetic, the ability to perceive through body movements and muscle feelings; (4) listening skill, an understanding of directions specifically for learning tasks; (5) social adaptive behavior, the capability of functioning independently in a low-demand competitive environment with limited support and supervision; and (6) approach to learning, the tendency to be reflective before acting.

Education

Education was the fourth variable set. There were four variables, including: (1) average daily attendance from September 1975 to March 31, 1976; (2) total years in Ontario-Montclair School District; (3) total years in a special education program; and (4) total years in Ontario-Montclair School District special education program.

Program

Fifth, program variables covered the curriculum areas of mathematics, reading, spelling, communication, and social responsibility. There was a basic set of six program variables for each curriculum area. This set of variables included: (1) average amount of time spent in instruction per week; (2) average number of textbooks used; (3) average number of concrete materials used; (4) achievement; (5) attitude toward subject; and (6) self-worth in subject.

Within the curriculum area of mathematics, program variables covered the following components: basic compuations, decimals, time clock, fractions, and mathematics average.

Within reading, program variables included these components: beginning-ending letter and sound identification, vowel-consonant sounds, alphabetical sequence, dictionary skills, and a reading average.

The curriculum areas of spelling and communication were not divided into components. Spelling and communication each consisted of the basic set of six program variables.

Social development was composed of: directed responsibility in class; directed responsibility out of class; non-directed responsibility in class; non-directed responsibility

out of class, and social development average.

In total, there were 102 program variables providing information in the five curriculum areas. Although there were 102 program variables, not all were used in the final analyses.

Achievement

The sixth variable domain was achievement. Information on student achievement was obtained from district records, a psychological evaluation of district tests, the California Test of Basic Skills, CTBS, and the Pre-Post test.

Student Achievement variables included: (1) language vocabulary, the quality and quantity of words understood; (2) verbal IQ, an assessment of the quantity of information known, comprehension and mental arithmetic; (3) nonverbal IQ, the ability to sequence picture, perceive missing details in pictures and reconstruct puzzles; (4) reading achievement, the ability to recognize letters and words; and (5) current reading level, a range from pre-primer to above 6th grade.

From the CTBS, the subtests used were Word Recognition II, and Computation, both addition and subtraction. Both raw and standardized scores were obtained from these subtests. Six variables were derived from the scores.

Pre-post test variables included raw and standardized scores for pre, post, and gain scores in the five curriculum areas.

Mathematics achievement variables included: basic computations; decimals; time clock; fractions; and mathematics total.

Reading achievement variables were: initial-ending sounds; vowel-consonant sounds; alphabetical sequence; dictionary skills; and reading total.

The social responsibility set of achievement variables were: directed in class responsibility; directed out of class responsibility; non-directed responsibility in the classroom; non-directed responsibility out of class; and social responsibility total.

For spelling and communication, the achievement variables were spelling and communication total.

In all, there were 197 variables in the study. Not all of these variables were used in the final analyses. The choice of the variables arose from the belief that well known sources of possible variation were needed in the study. It was thought that it might well be these explanatory variables which offered an understanding for possible variation.

Instrumentation

The summative phase of the evaluation of the curriculum consisted of using standardized tests and evaluator-developed instruments. Summative evaluation provided measures of student gain, the dependent variable, and student entry level skills (Bloom, 1971, pp. 61-85). All instruments are described below.

CTBS

Definition. The California Test of Basic Skills, CTBS, Level B, Form S, was selected as a standardized achievement test to use in the study. The purpose for using the test was to obtain an entry level measure on each student"s current achievement level in mathematics and reading. From the CTBS, two sub-tests were selected

as those most closely related to the curriculum of special education for the four classes. These subtests were Test 4, Word Recognition II and Test 8, Mathematics Computation, Addition and Subtraction. Because CTBS is a standardized test in wide usage, a copy of the test is not included in Appendix D.

Administration. Administration of the CTBS followed the directions found in the Examiner's Manual for Level B, Form S (1974, p. 11). Time limits for each of the subtests, Tests 2 and 8, were those found in the Examiner's Manual (1974, p. 7).

Scoring. Tests were hand scored using the answer key. Scores were derived by summing the right answers of each subtest. Subtest totals were then summed to yield a total score for the test.

Validity. In considering the content validity of CTBS, the CTBS Technical Bulletin No. 1 (pp. 24-25), states that the test does measure what it purports to measure, that is, only those skills being taught in the grades for which the level of the test is designated.

Reliability. According to the CTBS Technical Bulletin No. 1 (1974, p. 25), the CTBS test is considered reliable. Internal consistency reliability coefficients were above .71, $p < .05$ (1974, p. 41).

Pre-Post Test

Definition. The Pre-Post test consisted of one test in mathematics and one in reading. There were four subtests for both mathematics and reading which corresponded to the subject areas within mathematics and reading. Each subtest was keyed to curriculum goals for that particular subject area. In this way the Pre-Post test provided the basis for the summative evaluation of the curriculum.

Administration. The pre-test was administered in November, 1975, prior to implementing the curriculum. And the post test was administered 15 weeks later, the last week of March, 1976, at the completion of using the curriculum. The test was administered by the teacher to half the class at a time.

For the mathematics and reading tests, directions were read to the students, an example was worked inclass, and then students had 30 minutes to complete each test.

The communication skills test was administered to half the class as above. The teacher gave directions for the four subtests. One minute was allowed for student responses in each subtest. Depending on their ability, students wrote either in manuscript or cursive style. Students were encouraged to use their best handwriting and to write as rapidly as possible.

Social development was a teacher rating scale. Ratings were above average, average, and below average for the student's ability to accept responsibility. The criteria used for the average rating was the degree of responsibility that an average student in a regular classroom assumes successfully.

The spelling test is discussed in Section 1.5.3 of this Chapter.

Scoring. For mathematics, the four subtests were basic computations, decimals, time clock, and fractions. The number of items in basic computations was 25, decimals had 4, time clock had 4, and fractions had 13. Within basic computations, the 25 items corresponded to the five mathematics goals of the curriculum.

In reading, the four subtests were initial-ending sounds, vowel and consonant sounds, alphabetical sequence, and dictionary skills. The initial-ending subtest

had 7 items, the vowel-consonant subtest consisted of 7; alphabetical sequence subtest had 5; and dictionary skills subtest had 7.

The communication skills portion of the pre-post test was a timed test to assess writing skill. Depending on the student's ability either manuscript or cursive style handwriting was used. The four parts of this test were alphabet, name, words, and paragraph. Scoring of each of the four parts was based on the count of the number of letters or words correctly written in legible form. The total score was the sum of the four subscores. Total scores ranged from 6 to 58.

The social responsibility test measured four curriculum goals: (1) directed in class responsibility; (2) directed out of class responsibility; (3) non-directed in class responsibility; and (4) non-directed out of class responsibility. Within each of the four goals, specific responsibilities were detailed. In all, there were nine responsibilities measured.

The teacher rated the student on each of the nine responsibilities in terms of his or her degree of acceptance of the responsibility ranging from below average, through average, to above average. The nine responsibilities were the following. Directed in class responsibilities consisted of: (1) name on paper; (2) follow classroom rules; and (3) follow directions. Directed out of class responsibility had one measure: work with the secretary, custodian, or principal. Non-directed in class responsibilities were: (1) work on assignment on an individual basis; (2) change activity without teacher direction; and (3) clean up after activity. Non-directed out of class responsibilities included: (1) cafeteria and (2) playground.

Teacher ratings were scored as follows: below average was scored 1, average

was 2, and above average was 3. Scores were summed within each of the four goals, and then summed together for a total score.

Validity. Correlation analyses were performed between the Pre-Post test and the CTBS to determine the degree of relatedness between the two instruments. It was not expected that the two tests would be significantly related. It was believed that the curriculum developed for this project consisted of and spanned curriculum areas not generally found represented in any one standardized test. For this reason the Pre-Post instrument was developed for the explicit purpose of measuring achievement in the curriculum areas especially designed for this project.

In correlating the CTBS and Pre-Post test, the r statistic obtained was not significant, p .05, indicating that the two tests were not significantly related. This finding provides evidence that the Pre-Post test is measuring curriculum areas different from those measured by the CTBS. Therefore, the CTBS is not an appropriate instrument to use in measuring achievement in the curriculum areas of this project.

Further correlations calculations were made on sub tests of the CTBS and Pre-Post tests to determine if selected subtests might be related to significant degree.

First, the mathematics total scores for both CTBS and Pre-Post were calculated. The r statistic obtained was not significant, $p > .05$, again indicating that the two instruments test different areas in mathematics. This finding confirms further that the CTBS is an invalid instrument to use to measure mathematics achievement for the project curriculum.

And second, the mathematics subscales of addition and subtraction for each instrument were correlated to determine if the subscales were significantly related.

A correlation coefficient of .53, ($p < .05$ with 44 df) was obtained indicating that a significant relationship did exist between the two tests. The addition and subtraction subscales were significantly related which indicates that the two subscales are measuring virtually the same areas of mathematics skills. This finding strengthens the concurrent validity of the Pre-Post test. It indicates that the content of the Pre-Post test is significantly similar to the standardized CTBS test in respect to the subscales of addition and subtraction. The correlation coefficient would have been even higher if the two tests measured exactly the same types of addition and subtraction problems. Instead the CTBS consisted of addition and subtraction problems of whole numbers in the units, tens, and hundreds position without and with borrowing or carrying. The Pre-Post test spanned a greater range of computation skills in addition and subtraction. Included in this range of skills was the number to picture correspondence and addition and subtraction of whole numbers in the units, tens, hundreds, and thousands position without, then with, borrowing or carrying.

Reliability. As measures of internal consistency, alpha coefficients (Cronbach, 1951) for the mathematics and reading subtests were calculated on the total sample of the study which numbered 44. Each subtest coefficient reflects the degree of reliability in terms of overlapping variance among the items of the scale. The alpha coefficient for mathematics was .77; and the alpha coefficient for reading was .63.

Wide Range Achievement Test - Spelling Subtest

Definition. The Wide Range Achievement Test, WRAT, 1965 Revised Edition, Level I, was used to assess spelling gain in the study. A copy of the WRAT is not included in the appendix since it is a standardized test.

Administration. The WRAT spelling subtest was administered to 6 to 8 students at a time during the morning hours of school. The spelling words were dictated by the teacher and 15 seconds was allotted for the student to spell each word. There were 45 possible words to spell, the test was terminated for each student once he or she had missed 10 consecutive words.

Scoring. Traditional scoring of the spelling subtest was based on the number of items right. Scoring was done by a district psychologist.

Validity. It has been stated that the WRAT is a valid measure of spelling achievement (Buros, 1972, p. 66 and 67). Validity of the WRAT spelling subtest was determined by correlating it with other achievement tests. The correlation coefficient was .84 (Jastak, 1965, p. 16). Internal consistency validation had intercorrelation coefficients ranging from .7 to .9 (1965, p. 17).

Reliability. High reliability coefficients are reported by the author is for the spelling subtest. Reliability coefficients were based upon split-half coefficients. The reliability coefficients were above .9 (1965, p. 13).

Student Confidential Folders

District Student Confidential Folders provided information on student status, education, learning style-mode, and achievement variables. Reliability and validity of these records were not questioned, since all information is carefully recorded by the District. A copy of the Student Confidential Folder was not included in Appendix D, Instrumentation, since the records consist primarily of standard forms generally used by many school districts.

Teacher Questionnaire

A Teacher Questionnaire was designed for the study to obtain background and professional information on the four participating teachers. Questions were derived from Ryan's study on the characteristics of teachers. Such questions included teacher's age, years of teaching experience, years of graduate level education, and professional involvement. All questions are found in the Teacher Questionnaire in Appendix D.4, Instrumentation.

Teacher Rating of Student Learning Styles-Modes

This instrument was designed to have the teacher rate each of his students on selected learning styles-modes. These learning styles-modes included visual, auditory, and kinesthetic perceptions. Specialized learning modes consisted of approach to learning, listening skills, and social adaptive behavior. Ratings for the student were made in relation to the learning style-mode behavior of the average regular classroom student. An indication of each student's current reading level was indicated by the teacher as well. The complete instrument is found in Appendix D.3. Definitions and rankings of some of the above variables were based on Lambert's Assessment Manual and Helen Learner's book.

Omnibus Rating Scale

Definition. The Omnibus Rating Scale was an instrument developed by the project evaluator and a district psychologist (D.2). It was designed to provide measurements in selected achievement and learning style-mode areas. Information for the Omnibus Rating Scale was obtained by a psychological evaluation of student confidential records of achievement tests. In addition, results of the spelling subtest of the Wide

Range Achievement Test were interpreted by a psychologist. Additional information for the Omnibus Rating Scale was derived from the Teacher Rating of student learning styles-modes (D.3).

Scoring. The Omnibus Rating Scale categorized all information into five categories ranging from extremely below average, severly below average, below average, average, to above average. Average is defined as the average behavior of the regular classroom student. See Appendix D.2, Instrumentation, for the Omnibus Rating Scale.

Validity. The validity of the instrument in terms of content was provided by the district psychologist's evaluation of the instrument.

Reliability. Reliability of the Omnibus Rating Scale was provided by the psychologist double checking teacher ratings of student and district test scores of students. This confirmation of the information agreeing assured that the Omnibus Rating Scale was reliable in what it was measuring.

Student Weekly Reports and Summary Reports

Definition. Student Weekly Reports were designed to collect information for each student in all five curriculum areas. Information reported included instructional time, texts and concrete materials usage count, achievement, attitude, and self-worth. (see Appendix D.5).

Summary Report was an instrument developed to summarize the Weekly Report for each student. Student achievement and the rate of progression through the sequenced curriculum were information derived from this instrument. (Appendix D.6).

Validity. The content validity was provided by having a measurement specialist's

assessment of the instrument. This assessment ensured that the instrument was measuring what it purported to be measuring.

Reliability. Reliability of this instrument was obtained by site visits by the evaluator to check on the internal consistency of instruction between the classroom and the Student Weekly Reports.

Analyses

For the study both univariate and multivariate analyses were used. Within the univariate analyses, descriptive and correlation statistics were calculated. Descriptive statistics were calculated for each variable in this study. Further, correlation analyses were performed for selected variable sets and the performance criterion. Intercorrelations within instruments were calculated as well. Item analyses of the evaluator-developed pre-post instrument were performed to establish the reliability of the test instrument.

Multivariate analyses included Multivariate Analyses of Variance, Discriminant Function Analyses, and Analysis of Covariance.

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CHAPTER V

RESULTS

Variable Selection

From the 197 variables included in the study, a set of 42 variables was selected for inclusion in the initial analyses of the data. The 42 variables were the most important variables in the study because they (1) best represented each variable domain, (2) were the most interpretable, and (3) included malleable variables that could be readily changed, as needed, by program managers. Should initial findings have indicated a need to answer more specific questions, variables containing detailed information would have been included in subsequent analyses to provide additional understanding.

Analyses

The unit of analysis in the study was the student. Educationally Handicapped and Educable Mentally Retarded classrooms were analyzed separately. To help explain the gains in EH and EMR mathematics, reading, spelling, communication, and social responsibility, several statistical analyses were used.

Descriptive statistics on each of the 42 variables were calculated and are provided in Appendix E. The variable numbers mentioned in this chapter are enclosed in parentheses following the variable name and correspond to Appendix E variable numbers. Pair-wise correlation analyses were computed to determine which of the variables were significantly

related to each of the five gain scores. Univariate one-way analysis of variance was employed to determine if significant differences in gain for the five gain scores existed between the experimental and control EH and EMR classes.

In analyses with significant differences in gain between experimental and control groups, the variable set which was significantly correlated with the gain was entered into a multiple regression analysis. Multiple regression analysis is a technique yielding a linear relationship among a set of independent variables which explains the greatest amount of variation in the dependent variable, in this case, gain score.

Educable Mentally Retarded Results

Classroom Type. Associated with classroom type were nine variables. The experimental class: spent less time reading (20; reference numbers in Appendix E); used fewer concrete materials in reading (22); had less instruction time in spelling (23); received less instruction time in communication (26); used less communication texts (27); used fewer concrete materials in communication (28); spent less time in social responsibility instruction (29); used more texts in social responsibility (30); and used less concrete materials in social responsibility (31). Summary descriptive statistics are presented in Table I for the nine variables significantly related to classroom type. Table 2 provides significant intercorrelations among the nine independent variables and the variate classroom type.

Multiple regression analysis was inappropriate for classroom type because of the anticipated, inordinately-high intercorrelations among the independent variables. Most importantly, nine variables which explained classroom type were from the program variable domain.

TABLE 1

EMR UNIVARIATE STATISTICS ON THE NINE VARIABLES

CORRELATED WITH CLASSROOM TYPE (N=26)

Variable Name	Control (N=11) Mean	S.D.	Experimental (N=15) Mean	S.D.
Reading Time (20)	2.27	0.17	1.93	0.46
Reading Concrete Materials (22)	5.82	0.75	1.80	0.56
Spelling Time (23)	2.27	1.19	1.13	0.35
Communication Time (26)	5.36	1.29	2.07	0.46
Communication Texts (27)	4.36	0.50	1.87	0.64
Communication Concrete Materials (28)	4.36	0.50	1.87	0.64
Social Responsibility Time (29)	4.64	0.50	2.07	0.46
Social Responsibility Text (30)	0.00	0.00	2.53	0.52
Social Responsibility Concrete Materials (31)	4.00	0.00	0.00	0.00
Classroom Type (I)	1.00	0.00	1.00	0.00

TABLE 2

EMR, EXPERIMENTAL AND CONTROL, SIGNIFICANT

INTERCORRELATIONS AMONG NINE VARIABLES

AND CLASSROOM TYPE (N=26)

Reading Time	(20)									
Reading Concrete Materials	(22)	.57								
Spelling Time	(23)	*	.58							
Communication Time	(26)	.87	.89	*						
Communication Texts	(27)	.56	.63	*	.70					
Communication Concrete Materials	(28)	.87	.86	.45	.82	.69				
Social Responsibility Time	(29)	-.86	.92	.67	.85	.53	.83			
Social Responsibility Text	(30)	-.90	-.90	-.53	-.85	-.55	-.87	-.89		
Social Responsibility Concrete Materials	(31)	.94	.95	.58	.88	.59	.91	.94	-.96	
Classroom Type	(1)	-.94	-.95	-.58	-.88	-.59	-.91	-.94	.96	-1.0(
		(20)	(22)	(23)	(26)	(27)	(28)	(29)	(30)	(31)

$r \geq .39$ with 24 df, $p < .05$

Mathematics Gain. The EMR control classroom achieved significantly higher gains in mathematics than did the experimental classroom. The univariate F was 10.74 with 1 and 24 degrees of freedom, $p < .05$. In a multiple regression analysis, four variables surfaced which best explained mathematics gain. This combination of variables explained 72.4% of the variability in mathematics gain and the Multiple R was .851. The relative importance of each variable in this explanation is determined by the magnitude of its standardized regression coefficient. Descriptive statistics are provided in Table 3 and significant intercorrelations are listed in Table 4; variables are ordered by the magnitude of their importance. The most important contributor in this explanation was using more mathematics texts (18), with a standardized regression coefficient of -.44. Next in importance was spending less time in spelling instruction (23), standardized regression coefficient = .37. Third in importance was having less instruction in communication (26), with a standardized regression coefficient of .32. Least important was having lower mathematics achievement scores (36), standardized regression coefficient = .27.

Three of the contributing variables in explaining mathematics gain were from the program domain (18, 23, 26) while only one was from the achievement variable set (36).

In achieving significant mathematics gains, the control classroom might generally be described as a class using more mathematics texts, spending less time in spelling and communication instruction, and having lower mathematics achievement scores.

Reading Gain. There was a significant difference between the EMR experimental and control reading gains in favor of the experimental classroom. The univariate F was 4.78 with 1 and 24 degrees of freedom, $p < .05$.

TABLE 3

EMR UNIVARIATE STATISTICS ON THE FOUR VARIABLES

USED IN THE REGRESSION ANALYSIS WITH

MATHEMATICS GAIN AS THE VARIATE

(N=26)

Variable Name	Control (N=11) Mean	S.D.	Experimental (N=15) Mean	S.D.
Mathematics Texts (18)				
Spelling Time (23)	2.27	1.19	1.13	0.35
Communication Time (26)	5.36	1.29	2.07	0.46
Mathematics Achievement (36)	26.50[a]	2.27[a]	22.69[b]	7.00[b]
Mathematics Gain (28)	8.82	4.79	2.27	5.20

a N=10
b N=14

TABLE 4

EMR, EXPERIMENTAL AND CONTROL, SIGNIFICANT INTERCORRELATIONS AMONG FOUR INDEPENDENT VARIABLES AND THE VARIATE: MATHEMATICS GAIN (N=26)

Mathematics Texts	(18)				
Spelling Time	(23)	*			
Communication Time	(26)	*	.40		
Mathematics Achievement[a]	(36)	*	*	*	
Mathematics Gain	(38)	-.51	.54	.52	.54
		(18)	(24)	(26)	(36)

$r \geq .39$ with 24 df, $p < .05$

a N=24, $r \geq .40$ with 22 df, $p < .05$

Five variables were related to reading gain. The experimental class used fewer concrete materials in reading (22); spent less time in communication instruction (26); had less instruction time in social responsibility (29); used more texts in social responsibility (30); and used fewer concrete materials in social responsibility (31). Summary descriptive statistics for both groups are found in Table 5 for the five important variables. All variables were significantly intercorrelated as shown in Table 6. Thus, a multiple regression analysis was not appropriate.

Communication Gain. Significant differences were found between experimental and control classrooms in communication gain in favor of the experimental class. The univariate F was 4.21 with 1 and 24 degrees of freedom, $p < .05$.

Associated with communication gain for the experimental class were the following five variates: using fewer concrete materials in reading (22); spending less time in communication instruction (26); using less concrete materials in social responsibility (31); having lower reading achievement scores (35); and having lower mathematics achievement scores (36). Descriptive statistics on the two groups provided in Table 7 and Table 8 shows the significant intercorrelations among the important variables. Because of the extremely high intercorrelations among the independent variables, multiple regression analyses were impossible.

Educationally Handicapped Results

Educationally handicapped classes had significant differences in classroom type and communication gain. Results are presented below.

TABLE 5

EMR UNIVARIATE STATISTICS ON THE SIX VARIABLES

SIGNIFICANTLY CORRELATED WITH

READING GAIN (N=26)

Variable Name	Control (N=11) Mean	S.D.	Experimental (N=15) Mean	S.D.
Classroom Type (1)				
Reading Concrete Materials (22)	5.82	0.75	1.80	0.56
Communication Time (26)	5.36	1.29	2.07	0.46
Social Responsibility Time (29)	4.64	0.50	2.07	0.46
Social Responsibility Texts (30)	0.00	0.00	2.53	0.52
Social Responsibility Concrete Materials (31)	4.00	0.00	0.00	0.00
Reading Gain (39)	-1.27	4.27	1.80	2.91

TABLE 6

EMR, EXPERIMENTAL AND CONTROL, SIGNIFICANT INTERCORRELATIONS AMONG SIX INDEPENDENT VARIABLES AND THE VARIATE:

READING GAIN (N=26)

Classroom Type	(1)						
Reading Concrete Materials	(22)	-.95					
Communication Time	(26)	-.88	.89				
Social Responsibility Time	(29)	-.94	.92	.85			
Social Responsibility Texts	(30)	.96	-.90	-.85	-.89		
Social Responsibility Concrete Materials	(31)	-1.00	.95	.88	.94	-.96	
Reading Gain	(39)	.41	-.45	-.42	-.43	.40	-.41
		(1)	(22)	(26)	(29)	(30)	(31)

$r \geq .39$ with 24 df, $p < .05$

TABLE 7

EMR, EXPERIMENTAL AND CONTROL, SIGNIFICANT INTERCORRELATIONS AMONG SIX INDEPENDENT VARIABLES AND THE VARIATE: COMMUNICATION GAIN

(N=26)

Variable Name	Control (N=11) Mean	S.D.	Experimental (N=15) Mean	S.D.
Group (1)	1.00	0.00	1.00	0.00
Reading Concrete Materials (22)	5.81	0.75	1.80	0.56
Communication Time (26)	5.36	1.29	2.07	0.46
Social Responsibility Concrete Materials (31)	4.00	0.00	0.00	0.00
Reading Achievement (35)	39.20[a]	8.87[a]	32.00[b]	15.37[b]
Mathematics Achievement (36)	26.50[a]	2.27[a]	22.57[b]	6.74[b]
Communication Gain (41)	-4.82	10.03	4.47	12.28

a N=10
b N=14

TABLE 8

EMR, EXPERIMENTAL AND CONTROL, SIGNIFICANT INTERCORRELATIONS AMONG SIX INDEPENDENT VARIABLES AND THE VARIATE: COMMUNICATION GAIN (N=26)

Group	(1)						
Reading Concrete Materials	(22)	-.95					
Communication Time	(26)	-.88	.89				
Social Responsibility Concrete Materials	(31)	-1.00	.95	.88			
Reading Achievement[a]	(35)	*	*	*	*		
Mathematics Achievement[b]	(36)	*	*	*	*	.66	
Communication Gain	(41)	.39	-.39	-.42	-.39	-.61	-.54
		(1)	(22)	(26)	(31)	(35)[a]	(36)[b]

$r \geq .39$ with 24 df, $p < .05$

a N=25, $r \geq .40$ with 23 df, $p < .05$

b N=24, $r \geq .40$ with 22 df, $p < .05$

Classroom Type. In a multiple regression analysis, four variables best explained classroom type. This combination of variables explained 87.9% of the variation in classroom type and the Multiple R was .995. By ordering the standardized regression coefficients, the relative importance of each variable can easily be noted. The most important contributors in explaining the experimental classroom were: being older (2), with a standardized regression coefficient of 33.82; using fewer social responsibility texts (30), standardized regression coefficient with 0.65; having more instruction time in communication (26); standardized regression coefficient was 0.35; and reading at a higher level at present as rated by the teacher (37); with a standardized regression coefficient of 0.11. Summary descriptive statistics on both groups are presented for the four variables in Table 9 and significant intercorrelations among all variables are provided in Table 10.

Communication Gain. Significant differences existed in communication gain in f or of the experimental class. Associated with communication gain for the experimental class were eight variables; being older (2); using more texts in mathematics (18); having more instructional time in communication (26); receiving more instruction time in social responsibility (20); using fewer texts in social responsibility (30); experiencing higher reading achievement scores (35); having higher mathematics achievement scores (36); and performing at a higher reading level as rated by the teacher (37).

Summary descriptive statistics for the two groups are found in Table 11 and significant intercorrelations among all variables are shown in Table 12. A multiple regression analysis was inappropriate because of the extremely high intercorrelations among the eight variables.

Conclusions drawn from the results as well as implications for theory, research, and practice are discussed in the next chapter.

TABLE 9

EH UNIVARIATE STATISTICS ON THE FOUR VARIABLES USED IN THE REGRESSION ANALYSIS WITH CLASSROOM TYPE AS THE VARIATE (N=17)

Variable Name	Control (N=9) Mean	S.D.	Experimental (N=8) Mean	S.D.
Age (2)	102.89	14.58	131.25	7.23
Communication Time (26)	0.00	0.00	0.00	0.00
Social Responsibility Texts (30)	8.11	0.78	0.25	0.71
Present Reading Level (37)	2.71	1.25	4.50	1.41
Classroom Type (I)	1.00	0.00	1.00	0.00

TABLE 10

EH, EXPERIMENTAL AND CONTROL, SIGNIFICANT INTERCORRELATIONS AMONG THE FOUR INDEPENDENT VARIABLES AND THE VARIATE: CLASSROOM TYPE (N=17)

Age	(2)				
Communication Time	(26)	.75			
Social Responsibility Texts	(30)	-.76	-.95		
Present Reading Level	(37)	.74	.68	-.67	
Classroom Type	(1)	.79	.97	-.98	.64
		(2)	(26)	(30)	(37)

$r \geq .48$ with 15 df, $p < .05$

TABLE II

EH UNIVARIATE STATISTICS ON THE NINE VARIABLES SIGNIFICANTLY CORRELATED WITH COMMUNICATION GAIN AS THE VARIATE (N=17)

Variable Name	Control (N=9) Mean	S.D.	Experimental (N=8) Mean	S.D.
Classroom Type (1)	1.00	0.00	1.00	0.00
Age (2)	102.89	14.58	131.25	7.23
Mathematics Texts (18)	1.00	0.00	1.88	0.35
Communication Time (26)	0.00	0.00	1.88	0.35
Social Responsibility Time (29)	0.25	0.71	0.25	0.71
Social Responsibility Texts (30)	8.11	0.78	0.25	0.71
Reading Achievement (35)	32.14[a]	9.79[a]	48.00[b]	13.96[b]
Mathematics Achievement (36)	23.00[a]	3.21[a]	28.75[b]	3.06[b]
Present Reading Level (37)	2.71	1.25	4.50	1.41
Communication Gain (41)	0.00	4.09	14.38	11.58

a N=8
b N=7

TABLE 12

EH, EXPERIMENTAL AND CONTROL, SIGNIFICANT INTERCORRELATIONS AMONG NINE INDEPENDENT VARIABLES AND THE VARIATE: COMMUNICATION GAIN (N=17)

Classroom Type	(1)								
Age	(2)	.79							
Mathematics Texts	(18)	.89	.70						
Communication Time	(26)	.97	.75	.85					
Social Responsibility Time	(29)	*	*	*	.53				
Social Responsibility Texts	(30)	-.98	-.76	-.87	-.95	*			
Reading Achievement	(35)	.63	.60	.71	.65	*	-.63		
Mathematics Achievement[a]	(36)	.70	.75	.67	.74	*	-.72	.82	
Present Reading Level	(37)	.64	.74	.68	.68	*	-.67	.87	.84
Mean Communication Gain	(41)	.67	.59	.61	.73	.66	-.65	.58	.57
		(1)	(2)	(18)	(26)	(29)	(30)	(35)	(36)[a]

$r \geq .48$ with 15 df, $p < .05$

[a] $N=15$, $r \geq .51$ with 13 df, $p < .05$

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

Conclusions for EMR Significant Gains

Mathematics Gain. One conclusion based upon findings of the study is that mathematics achievement is attributed to a combination of program variables. Background, educational, and psychological characteristics did not contribute significantly to growth in mathematics.

Successful mathematics achievement by the control classroom is meaningfully explained by the following variables, ordered by their importance: using more mathematics texts, spending less time in spelling instruction, having less instructional time in communication, and having lower mathematics achievement scores.

One plausible interpretation of the above conclusion is that by relying on multiple texts, mathematical concepts are presented in enough different ways to meet each individual student's learning needs.

Also important in this explanation is spending less instructional time in the areas of spelling and communication. By spending less time in these areas, more time may be devoted to mathematics instruction, although this variable did not emerge as a significant contributor. Since the control students had lower mathematics achievement scores to begin with, the quality of mathematics instruction, such as using numerous appropriate texts, does overcome a low entry level in mathematics skills.

Another factor undoubtedly playing an important role in the gain score was that every student in the control classroom had a hand calculator for use in the math program. Importantly, high mathematics gain can be explained by the three program variables and one achievement variable. Student's sex, preferential learning mode, adaptive behavior, and years in special education classes do not provide any indication of an important gain in achievement in mathematics.

Reading Gain. Reading success by the experimental classroom is best explained by the following combination of program variables: using fewer concrete materials in reading; spending less time in communication instruction; spending less time in social responsibility activities; using more texts in social responsibility; and using fewer concrete materials in social responsibility.

An appropriate interpretation of these results would be that although fewer concrete materials were used in reading, possibly those few materials are necessary components in creating a quality reading program. Also, by using fewer concrete materials, more time can be devoted to reading instruction. The quality of instruction and the use of selected appropriate teaching strategies may have importance in the improved reading scores.

A further explanation for the relationship between less instruction time in communication and reading gain would be that more time could be spent in reading instruction. Additionally, by spending less time in social responsibility instruction, greater instructional time may be devoted to reading.

Variables not important in the explanation of reading success include reading achievement score, verbal achievement score, language vocabulary, present reading

level, ethnicity, sex, age, attendance, preferential learning mode, approach to learning, dependency on teacher, and total number of years in special education programs.

Communication Gain. Communication gain by the experimental class may be explained by: using fewer concrete materials in reading, spending less time in communication instruction, using fewer concrete materials in social responsibility, and having lower reading and mathematics achievement scores.

A plausible interpretation of these results is that although fewer concrete materials are used in reading and social responsibility, it may be that the quality of resource materials and/or specific teaching strategies are more important than the number of concrete materials used. Additionally, spending less time in communication instruction may indicate that specific teaching strategies used by the teacher are more effective than the strategies used by the control group. These three program variables suggest that informal communication instruction may be present in the classroom throughout the instructional day. Communication instruction can also be more easily individualized than other areas of the curriculum, but indications point to the quality of concrete materials and instruction present in the classroom.

The fact that students having lower reading and mathematics achievement scores achieved higher gains in communication, also may be related to the quality of instruction and the possibility of individualization. The relationship of communication skills to reading is an area where more study needs to be done.

Student background, educational, and psychological characteristics do not provide any additional information in explaining communication gain.

Conclusions for the EH Significant Gain

Communication Gain. Communication gain by the experimental class is attributed to: being older, using more texts in mathematics, spending more time in communication instruction, having more social responsibility instruction time, using fewer texts in social responsibility, experiencing higher reading achievement scores, having higher mathematics achievement scores, and performing at a higher reading level as rated by the teacher.

A likely explanation of the above conclusion is that by being older and having higher reading and mathematics achievement scores, students benefit more from communication learning experiences. It appears that student readiness skills are present so that rapid progress can be made in acquiring communication skills.

Further, by using more texts in mathematics and fewer texts in social responsibility it appears that a formal instructional program exists. It may be that an integrated and carefully structured instructional program exists in the experimental classroom as indicated by receiving more instructional time in communication and social responsibility. Time and resources together point to a total structured program operational in the classroom. Considering the students, this instructional program can generally be viewed as beneficial in insuring student achievement.

High communication gains are explained only by program and achievement characteristics. Student's sex, ethnicity, age, preferential learning mode, approach to learning, attendance, and total years in special education programs are not important characteristics in this explanation.

Implications for Theory, Research, and Practice

For Theory. Program variables rather than background, educational, psychological, and achievement characteristics were prime contributors in explaining the four significant gains. Because of the demonstrated contribution of the experiential taxonomy and curriculum, further development should proceed in the qualitative instructional processes such as learning principles, teaching strategies, and levels of critical thinking and problem solving. Work on an experiential taxonomic curriculum model including learning principles, teaching strategies, levels of critical thinking, and problem solving has already begun.

For Research. Because of the importance of the findings of the study, follow-up research on the same special education students over time should be conducted to determine what future gains are made by these students. Also needed is a similar study focusing on students in regular classrooms.

Once the experiential taxonomy model's theoretical base is expanded to include learning principles, teaching strategies, levels of critical thinking and problem solving, further research should be done on developing quantitative dimensions of the instructional process in all areas of the curriculum. Research in these areas would allow a closer look at classroom instructional processes.

For Practice. Since program variables were vitally important in explaining EH and EMR gains in mathematics, reading, and communication, an implication for practice is suggested. This study indicates that a carefully structured instructional program does contribute to student development. The experiential taxonomy and curriculum represent one such instructional program which enables a student to attain significant achievement. Such sequential instructional programs overcome limitations in student learning modes,

achievement levels, educational and home background characteristics. The importance of a structured curriculum and instructional program does emerge as one of the most important factors, if not the most important factor, in determining whether a student does achieve as expected. Teachers, administrators, and curriculum planners may want to consider the findings of this study when selecting an instructional program for the individual students for the classroom, the school, and the district as a whole.

This study has demonstrated the need for the state to support further research on a carefully sequenced instructional program as a high priority item.

Studies of mere psychological, background, or educational correlates to student achievement are not addressing the entire scope of problem.

What is beneficial for Ontario-Montclair School District students could well be of value to every special education student in the state.

APPENDIX A

CURRICULUM GOALS

GOALS

1.0 Mathematics

1.1.0 Basic Computations: Addition, Subtraction, Multiplication, Division

1.1.1 Addition/Subtraction without borrowing or carrying in the units position.

1.1.2 Addition/Subtraction without borrowing or carrying in the a) tens; b) hundreds; and c) thousands position.

1.1.3 Addition/Subtraction with borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

1.1.4 Multiplication/Division without borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

1.1.5 Multiplication/Division with borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

1.2.0 Decimals: Addition, Subtraction

1.2.1 Addition/Subtraction without then with borrowing or carrying in the a) tenths; b) hundredths; and c) thousandths position.

1.3.0 Time Clock

1.3.1 Time Clock Skills to Tell Time in a) hour; b) half hour; c) quarter hour; d) ten minute; e) five minute; and f) one minute intervals.

1.4.0 Fractions: Addition, Subtraction, Multiplication, Division

1.4.1 Addition/Subtraction with Common Denominators without then with borrowing or carrying.

1.4.2 Addition/Subtraction without Common Denominators without then with borrowing or carrying.

1.4.3 Multiplication/Division with then without Common Denominators without then with brrowing or carrying.

GOALS

2.0 Reading

2.1.0 Initial and Ending Letters and Sounds

2.1.1 Letter Identification.

2.1.2 Sound Identification Including: a) hard and soft consonants; b) consonant digraph and trigraph; and c) ending sounds of s, ed, and silent e.

2.2.0 Vowel and Consonant Sounds

2.2.1 Sound Identification of: a) short vowel; b) long vowel; c) r-controlled vowel; d) digraph vowel; e) diphthong vowel; and f) silent, hard, and soft consonants.

2.3.0 Alphabetical Sequence

2.3.1 Alphabetize letter of alphabet and first letter of words.

2.3.2 Second and third letters of words.

2.4.0 Dictionary Usage

2.4.1 Syllabication and Accent Marks

2 4.2 Use of Guidewords and References

2.4.3 Pronunciation and Definitions

3.0 Spelling

3.1.0 Sound Relationships of One and Multi-syllable words for Initial, Medial, and Ending Consonants and Vowels having a) Same; b) Similar; and c) Dissimilar Sounds.

GOALS

4.0 Communication

4.1.0 Manuscript and Cursive Writing Skills

5.0 Social Development

5.1.0 Directed Responsibility within the Classroom

5.2.0 Directed Responsibility outside the Classroom

5.3.0 Non-Directed Responsibility within the Classroom

5.4.0 Non-Directed Responsibility outside the Classroom

APPENDIX B

CURRICULUM

GOALS BY OBJECTIVES BY ACTIVITIES

BY TEXTS AND BY CONCRETE MATERIALS

B.1 Mathematics

B.2 Reading

B.3 Spelling

B.4 Communication Skills

B.5 Social Responsibility

B.I: MATHEMATICS CURRICULUM

1.0 Mathematics

- 1.1 Basic Computations
- 1.2 Decimals
- 1.3 Time Clock
- 1.4 Fractions

1.0 MATHEMATICS OBJECTIVES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.1 Objectives for First Goal: Addition/Subtraction without borrowing or carrying in the units position.

For each taxonomic level the student:

1.0	Exposure	1.1 watches teacher demonstration of numeral correspondence to pictures and then to addition process. 1.2 expects to learn to add and subtract.
2.0	Participation	2.1 groups objects then counts. 2.2 participates with teacher in addition/subtraction process.
3.0	Identification	3.1 adds/subtracts correctly. 3.2 explains addition/subtraction process.
4.0	Internalization	4.1 applies skill to related addition/subtraction problems. 4.2 performs simple addition/subtraction word problems read by teacher.
5.0	Dissemination	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to another or to prepare instructional material.

1.0 MATHEMATICS ACTIVITIES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.1 Activities for First Goal: Addition/Subtraction without borrowing or carrying in the units position

1.0	Exposure:	1.1	Teacher presents numerals.
		1.2	Teacher matches numerals to corresponding pictures.
		1.3	Teacher groups objects together using numeral and picture, then with numeral alone.
		1.4	Teacher performs addition using numerals and pictures, then numerals alone.
2.0	Participation:	2.1	Teacher and student(s) count numerals with pictures, objects, and lists.
		2.2	Teacher and student(s) group objects on a paper plate following teacher directions for addition.
		2.3	Teacher and student(s) determine result of grouped quantities.
3.0	Identification:	3.1	Student(s) locate correct number card or indicate numeral when given cards with pictured objects.
		3.2	Student(s) use decimal chart with pockets to explain addition.
		3.3	Student(s) use numerals and pictures together in addition, then use numerals alone.
4.0	Internalization:	4.1	Student(s) place correct symbol between two sets of pictured objects with answer to indicate the proper operation, then use numerals alone.
		4.2	Student(s) listen to story problem and demonstrate how to solve the problem.
		4.3	Student(s) apply addition concepts to other school situations in or out of the classroom.
5.0	Dissemination:	5.1	Student(s) explain solution of problem using number line.
		5.2	Student(s) volunteer to make a set of 0-9 addition problems on flash cards for other students to use.
		5.3	Student(s) volunteer to construct an addition table up to 5 + 5 for a bulletin board display.

1.0 MATHEMATICS OBJECTIVES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.2 Objectives for Second Goal: Addition/Subtraction without borrowing or carrying in the a) tens; b) hundreds; and c) thousands position

For each taxonomic level the student:

1.0	Exposure:	1.1	watches teacher demonstration of decimal system by grouping objects in pockets of decimal board.
		1.2	expects to learn to add and subtract using the positions in the decimal system.
2.0	Participation:	2.1	groups objects in pockets of decimal board.
		2.2	participates with teacher in addition/subtraction process.
3.0	Identification:	3.1	adds/subtracts correctly.
		3.2	explains addition/subtraction process of using the decimal system.
4.0	Internalization:	4.1	applies skill to related addition/subtraction problems.
		4.2	performs simple addition/subtraction word problems read by teacher.
5.0	Dissemination:	5.1	demonstrates skill to teacher.
		5.2	volunteers to teach skill to another.

1.0 MATHEMATICS ACTIVITIES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS
1.1.2 Activities for Second Goal: Addition/Subtraction without carrying or borrowing in the a) tens; b) hundreds; and c) thousands position.

1.0	Exposure:	1.1	Teacher uses decimal pocket board to group objects in the units and tens position for addition problem.
		1.2	Teacher performs addition using objects then numerals in a decimal pocket board.
		1.3	Teacher performs same addition problem using numerals only.
2.0	Participation:	2.1	Teacher and student(s) group objects in pockets of decimal board to solve addition problem.
		2.2	Teacher and student(s) add objects to obtain total.
		2.3	Teacher and student(s) use numerals to solve same addition problem.
3.0	Identification:	3.1	Student(s) group objects in decimal pocket board to solve addition problem.
		3.2	Student(s) solve addition problem first using decimal board then using numerals.
		3.3	Student(s) use numerals to solve addition problem.
4.0	Internalization:	4.1	Student(s) use numerals to add problems obtaining consistently correct answers.
		4.2	Student(s) apply addition process to other class-related activities.
		4.3	Student(s) listen to simple story problem and demonstrate how to solve it using objects and numerals.
5.0	Dissemination:	5.1	Student(s) prepare chart demonstrating addition of tens using decimal pocket or a) 10's; b) 100's; c) 1000's position without carrying.
		5.2	Student(s) volunteer to teach skills in a cross-age teaching situation.

1.0 MATHEMATICS OBJECTIVES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.3 Objectives for Third Goal: Addition/Subtraction with borrowing and carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

For each taxonomic level the student:

1.0	Exposure:	1.1 watches teacher explanation of addition/subtraction with carrying/borrowing using decimal pocket chart. 1.2 expects to learn to add/subtract with borrowing/carrying.
2.0	Participation:	2.1 uses pocket chart to group numbers correctly and to carry or borrow for addition/subtraction problem. 2.2 adds/subtracts problem with carrying/borrowing.
3.0	Identification:	3.1 adds consistently correct problems with carrying/borrowing. 3.2 demonstrates addition/subtraction process using pocket chart.
4.0	Internalization:	4.1 works simple word problems read by teacher using addition/subtraction with carrying/borrowing. 4.2 applies skill to related type problems.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill or to prepare instructional materials.

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1.0 MATHEMATICS ACTIVITIES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.3 Activities for Third Goal: Addition/Subtraction of whole numbers with borrowing or carrying using the: a) units; b) tens; c) hundreds; and d) thousands position.

1.0	Exposure:	1.1 Teacher uses decimal pocket board to demonstrate addition problem using units and tens. 1.2 Teacher reviews decimal system then explains carrying. 1.3 Teacher performs addition problem using objects in decimal pocket board then with numerals.
2.0	Participation:	2.1 Teacher and student(s) use decimal pocket board to group objects in pockets to picture addition problem with carrying. 2.2 Teacher and student(s) add objects to obtain total. 2.3 Teacher and student(s) use numerals to solve same addition problems.
3.0	Identification:	3.1 Student(s) group objects in decimal pocket board to solve a similar problem. 3.2 Student(s) solve addition problem first using decimal board then using numerals. 3.3 Student(s) use numerals to solve the same problem in order to check results.
4.0	Internalization:	4.1 Student(s) obtain consistently correct addition results using numerals. 4.2 Student(s) apply addition skills to other class related activities. 4.3 Student(s) listen to simple story problem and demonstrate how to solve it using objects and numerals.
5.0	Dissemination:	5.1 Student(s) prepare addition table for numbers 10-100, a) 10's; b) 100's; c) 1000's position. 5.2 Student(s) volunteer to teach addition concepts in a cross-age teaching situation.

1.0 MATHEMATICS OBJECTIVES

1.1.0 BASIC COMPUTATIONS: FOUR GOALS

1.1.4 Objectives for Fourth Goal: Multiplication/Division without borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

For each taxonomic level the student:

1.0	Exposure:	1.1 watches teacher explanation using decimal pocket chart on grouping objects, adding objects, then repeating process using multiplication. 1.2 expects to learn to multiply and divide.
2.0	Participation:	2.1 groups objects, following teacher directions, counts groups having same number of objects to obtain total. 2.2 repeats above process but obtains total by multiplying. 2.3 names some multiplication products of problems on flash cards.
3.0	Identification:	3.1 states all multiplication facts on flash cards up to 3 x 3, then 6 x 6, 9 x 9, 10 x 10, 11 x 11, 12 x 12. 3.2 performs multiplication problems using numerals.
4.0	Internalization:	4.1 states all multiplication facts correctly and works problem correctly. 4.2 works multiplication word problems read by teacher. 4.3 applies multiplication skills to other activities.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill or to prepare instructional materials.

1.0 MATHEMATICS ACTIVITIES

1.1.0 BASIC COMPUTATIONS: FOUR GOALS

1.1.4 Activities for Fourth Goal: Multiplication/Division without borrowing and carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

1.0	Exposure:	1.1 Teacher groups objects into specific groups of the same number. 1.2 Teacher performs addition of groups of objects. 1.3 Teacher shows how multiplication is a faster method of addition of the same number (division-subtraction).
2.0	Participation:	2.1 Teacher and student(s) group objects following teacher directions. 2.2 Teacher and student(s) group objects into groups of same number and count the number of groups to talk through a multiplication problem. 2.3 Teacher and student(s) add to obtain total number of objects; then multiply to get total. 2.4 Teacher and student(s) use flash cards of pictures or numerals to learn multiplication facts.
3.0	Identification:	3.1 Student(s) group objects, count the number of groups, then use numerals to indicate total number of groups and amount in each group. 3.2 Student(s) add to obtain total then repeat process using multiplication. 3.3 Student(s) use numerals to represent problem, then multiply to get result. 3.4 Student(s) use flash cards to learn multiplication facts.
4.0	Internalization:	4.1 Student(s) apply multiplication process to class activities; number of students in class, amount of money that lunch costs per week, and others. 4.2 Student(s) listen to simple story problem and demonstrate how to solve it pictorially using objects and numerals. 4.3 Student(s) consistently and correctly work related multiplication problems using numerals only.
5.0	Dissemination:	5.1 Student(s) prepare multiplication chart for numbers 0-3. 5.2 Student(s) volunteer to explain multiplication chart to teacher.

1.0 MATHEMATICS OBJECTIVES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.5 Objectives for Fifth Goal: Multiplication/Division with borrowing and carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

		For each taxonomic level the student:
1.0	Exposure:	1.1 watches teacher demonstration of multiplication/division with carrying and borrowing. 1.2 anticipates learning to multiply/divide using carrying/borrowing.
2.0	Participation:	2.1 groups objects into decimal pockets and explains the multiplication problem with carrying using the decimal pockets. 2.2 works same problem by multiplication.
3.0	Identification:	3.1 multiplies correctly using carrying. 3.2 explains multiplication process with carrying.
4.0	Internalization:	4.1 works multiplication word problems read by teacher. 4.2 applies multiplication skills to other activities.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill or to prepare instructional materials.

1.0 MATHEMATICS ACTIVITIES

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.5 Activities for Fifth Goal: Multiplication/Division with borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

1.0	Exposure:	1.1 Teacher uses objects with decimal pocket board to explain multiplication problem involving carrying. 1.2 Teacher reviews the carrying process. 1.3 Teacher performs multiplication problem using objects in decimal pocket board then with numerals.
2.0	Participation:	2.1 Teacher and student(s) use decimal pocket board to group objects in pockets to conceptualize multiplication problem with carrying. 2.2 Teacher and student(s) add objects to obtain total. 2.3 Teacher and student(s) use numerals to solve same multiplication problem.
3.0	Identification:	3.1 Student(s) group objects in decimal pocket board to solve a similar problem. 3.2 Student(s) solve multiplication problem using objects then numerals in decimal board. 3.3 Student(s) use numerals to solve same problem in order to check results.
4.0	Internalization:	4.1 Student(s) obtain consistently correct results using numerals. 4.2 Student(s) apply multiplication skills to other class related activities. 4.3 Student(s) listen to simple story problem and demonstrate how to solve it using objects and numerals.
5.0	Dissemination:	5.1 Student(s) prepares chart explaining complementarity of multiplication/division/process. 5.2 Student(s) volunteer to explain chart to teacher or to a peer.

1.0 MATHEMATICS OBJECTIVES

1.2.0 DECIMALS: ONE GOAL

1.2.1 Objectives for the Goal: Addition/Subtraction of decimals in the a) tenths; hundredths; and c) thousands position without, then with, borrowing and carrying.

For each taxonomic level the student:

1.0	Exposure:	1.1	watches teacher's demonstration of addition/subtraction of decimals using decimal pocket chart.
		1.2	expects to learn to add and subtract decimals.
2.0	Participation:	2.1	groups decimal numbers into appropriate decimal pocket chart.
		2.2	participates with teacher in addition/subtraction of decimals using a decimal pocket chart.
3.0	Identification:	3.1	performs decimal problem correctly.
		3.2	explains process of working problem.
4.0	Internalization:	4.1	applies skill to related type decimal problems.
		4.2	works simple decimal word problems read by teacher.
5.0	Dissemination:	5.1	demonstrates skill to teacher.
		5.2	volunteers to teach skill to another.

1.0 MATHEMATICS ACTIVITIES

1.2.0 DECIMALS: ONE GOAL

1.2.1 Activities for Goal: Addition/Subtraction of Decimals without then with borrowing or carrying in the a) tenths; b) hundredths; and c) thousandths position.

1.0	Exposure:	1.1 Teacher using play money coins introduces decimal addition problems. 1.2 Teacher uses decimal pocket board and play coins to explain the decimal addition problem including the handling of the decimal. 1.3 Teacher performs addition using money, decimal pockets, and numerals.
2.0	Participation:	2.1 Teacher and student(s) group money in decimal pockets to solve addition problem. 2.2 Teacher and student(s) add objects to obtain total. 2.3 Teacher and student(s) use numerals to solve the same addition problem.
3.0	Identification:	3.1 Student(s) group money in decimal pockets to solve addition problem. 3.2 Student(s) solve addition problem first using decimal board then using numerals. 3.3 Student(s) use numerals to solve addition problem.
4.0	Internalization:	4.1 Student(s) obtain consistently correct results in decimal addition. 4.2 Student(s) apply addition process to other class-related activities. 4.3 Student(s) listen to simple story problems and demonstrate how to solve it using objects and numerals.
5.0	Dissemination:	5.1 Student(s) prepare bulletin board showing decimal addition. 5.2 Student(s) volunteer to explain bulletin board to teacher.

1.0 MATHEMATICS OBJECTIVES

1.3.0 TIME CLOCK: ONE GOAL

1.3.1 Objectives for Goal: to tell time for a) hour; b) half hour; c) quarter hour; d) ten minute; e) five minute; and f) one minute intervals.

For each taxonomic level the student:

1.0	Exposure:	1.1	observes teacher's demonstration of model clock - identification of parts; relatedness to activities; and telling time by the hour.
		1.2	expects to learn to tell time.
2.0	Participation:	2.1	sets model clock to tell time at hour intervals.
		2.2	tells time by hour intervals looking at the clock.
3.0	Identification:	3.1	tells time correctly at hour intervals.
		3.2	sets model clock using hour intervals to indicate time at which selected routine activities begin or end.
4.0	Internalization:	4.1	tells what time it will be 2 hours later.
		4.2	applies time clock skills to other related activities.
5.0	Dissemination:	5.1	demonstrates skill to teacher.
		5.2	volunteers to teach skill to another.

1.0 MATHEMATICS ACTIVITIES

1.3.0 TIME CLOCK: ONE GOAL

1.3.1 Activities for the Goal: to tell time for a) hour; b) half hour; c) quarter hour; d) ten minute; e) five minute; and f) one minute intervals.

1.0	Exposure:	1.1	Teacher points to clock and asks if it is recess, lunch, or bed time.
		1.2	Teacher points to and reads numerals on clock face.
		1.3	Teacher identifies hour hand and minute hand.
		1.4	Teacher shows relationship of hand placement with routine activity.
		1.5	Teacher demonstrates using model clock the relatedness of the hand to the number of hours in a day and to the fact that noon and midnight divide A.M. and P.M.
2.0	Participation:	2.1	Teacher and student(s) use model clocks to point to and identify numerals.
		2.2	Teacher and student(s) place clock hand to indicate time to nearest hour for recess, lunch, and dismissal.
		2.3	Teacher and student(s) tell time using model clocks to the hour, or other activities.
		2.4	Teacher and student(s) estimate time to nearest hour when minute hand is in different positions.
3.0	Identification:	3.1	Student(s) use model clocks to set time to indicate morning, afternoon, and evening.
		3.2	Student(s) set their model clock to the time indicated by the teacher (hour, half, quarter).
		3.3	Student(s) set their model clock to lunch, recess, beginning-ending times of class including 10 and 5 minute intervals.
4.0	Internalization:	4.1	Student(s) listen to story problem and indicate whether to add or subtract to the time indicated.
		4.2	Student(s) indicate the time 3 hours later than or before the beginning time.
		4.3	Student(s) apply time clock concepts to other school-related activities.
		4.4	Student(s) determine travel time before arriving at destination.
5.0	Dissemination:	5.1	Student(s) demonstrate time clock concepts to teacher.
		5.2	Students prepare bulletin board associating time to classroom schedule of activities.

1.0 MATHEMATICS OBJECTIVES

1.4.0 FRACTIONS: THREE GOALS

1.4.1 Objectives for the first goal: Addition/Subtraction without, then with, borrowing or carrying for fractions with common denominators including a) proper; b) improper; and c) mixed.

For each taxonomic level the student:

1.0	Exposure:	1.1 observes teacher demonstration of fractional parts of whole. 1.2 watches teacher add fractions. 1.3 expects to learn to add fractions.
2.0	Participation:	2.1 names fractions on flash cards. 2.2 names how many fractional parts make a whole. 2.3 changes mixed and improper fractions.
3.0	Identification:	3.1 adds fractions. 3.2 states equivalents to fractions of 1/2, 1/3, 1/4, 1/5. 3.3 states whether a fraction is equivalent to, greater than, or less than another fraction.
4.0	Internalization:	4.1 adds fractions consistently correct. 4.2 applies addition/subtraction of fraction skill to other activities.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

1.0 MATHEMATICS ACTIVITIES

1.4.0 FRACTIONS: THREE GOALS

1.4.1 Activities for the First Goal: Addition/Subtraction without then with borrowing or carrying for fractions with common denominators including a) proper; b) improper and c) mixed.

1.0	Exposure:	1.1 Teacher presents pictures and/or objects divided into fractional parts 1/2, 1/4, 1/5 and counts the parts to equal the whole. 1.2 Teacher demonstrates fractional parts of whole and names those fractional parts. 1.3 Teacher adds fractional parts of object. 1.4 Teacher demonstrates equivalent fractions: 1/2 = 2/4; 1/3 = 2/6 1/5 = 2/10, then fractions greater or less than those fractions.
2.0	Participation:	2.1 Teacher and student(s) name fractions shown on flash cards (numbers or pictures.) 2.2 Teacher and student(s) name fractions equivalent, greater than, or less than another fraction. 2.3 Teacher and student(s) name how many fractional parts make a whole when its divided into 1/2, 1/3, 1/4, and 1/5. 2.4 Teacher and student(s) add fractional parts of one object.
3.0	Identification:	3.1 Student(s) names fractions shown on flash card. 3.2 Student(s) states whether a fraction is equal to, greater, or smaller than another fraction. 3.3 Student(s) adds two fractions. 3.4 Student(s) explains process of addition.
4.0	Internalization:	4.1 Student(s) adds fractions correctly and consistently. 4.2 Student(s) applies skill to other problems.
5.0	Dissemination:	5.1 Student(s) prepares equivalency chart for fractions up to 1/5. 5.2 Student(s) volunteers to teach skill to another student.

1.0 MATHEMATICS OBJECTIVES

1.4.0 FRACTIONS: THREE GOALS

1.4.2 Objectives for second Goal: Addition/Subtraction without then with borrowing and carrying for fractions without common denominators including a) proper; b) improper; and c) mixed.

For each taxonomic level the student:

1.0	Exposure:	1.1 watches teacher explanation on finding common denominators. 1.2 expects to learn to add fractions without common denominators.
2.0	Participation:	2.1 finds common denominator, with teacher's help, for simple fractions 1/2 and 1/4. 2.2 adds fractions with common denominators.
3.0	Identification:	3.1 explains equivalencies between fractions. 3.2 changes unlike denominators to like. 3.3 adds fractions correctly.
4.0	Internalization:	4.1 changes unlike denominators to like for all fractions. 4.2 applies skill to other activities.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

1.0 MATHEMATICS ACTIVITIES

1.4.0 FRACTIONS: THREE GOALS

1.4.2 Activities for Second Goal: Addition/Subtraction without then with borrowing or carrying for fractions without common denominators including: a) proper; b) improper; and c) mixed.

1.0	Exposure:	1.1 Teacher presents pictures of two objects each divided into a different number of parts (1/2 and 1/3). 1.2 Teacher states that to add denominator must be the same. 1.3 Teacher explains concept of dividing the objects into smaller parts until each have the same numberof parts. 1.4 Teacher shows the portions of smaller parts that is equivalent to the original portion for each object. 1.5 Teacher then adds these equivalent smaller parts together. 1.6 Teacher demonstrates equivalence between product of 1/2 x 1/3 to the smaller like denominators.
2.0	Participation:	2.1 Teacher and student(s) divide unlike denominators into fractions with smaller denominators until they are the same (use concrete objects). 2.2 Teacher and student(s) add equivalent smaller fractions with like denominators. 2.3 Teacher and student(s) make an equivalency chart.
3.0	Identification:	3.1 Student(s) uses equivalency chart and concrete objects to explain equivalencies between group of common fractions 1/2, 1/3, 1/4, 1/5, 1/6. 3.2 Student(s) changes two unlike fractions to ones having like fractions using equivalency chart or concrete objects. 3.3 Student(s) then adds like denominator fraction problem.
4.0	Internalization:	4.1 Student(s) changes unlike fractions to like fractions correctly. 4.2 Student(s) adds the like denominator fractions consistently correctly. 4.3 Student(s) applies skill to other problems.
5.0	Dissemination:	5.1 Student(s) makes an equivalency chart for classroom use. 5.2 Student(s) volunteers to demonstrate use of equivalency chart to another student.

1.0 MATHEMATICS OBJECTIVES

1.4.0 FRACTIONS: THREE GOALS

1.4.3 Objectives for third Goal: Multiplication/Division without and then with borrowing or carrying for fractions with and without common denominators including a) proper; b) improper; and c) mixed.

For each taxonomic level the student:

1.0	Exposure:	1.1 observes teacher demonstration of multiplying fractions using diagrams. 1.2 expects to learn to multiply fractions.
2.0	Participation:	2.1 works problem using objects, with teacher's help. 2.2 multiplies problem to check answer.
3.0	Identification:	3.1 multiplies fractions with or without like denominators. 3.2 explains concept of multiplication using objects decimal problem.
4.0	Internalization:	4.1 applies skill to other areas. 4.2 works word problems using multiplication and division of fractions.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

1.0 MATHEMATICS ACTIVITIES

1.4.0 FRACTIONS: THREE GOALS

1.4.3 Activities for Third Goal: Multiplication/Division without and then with borrowing or carrying for fractions with and without common denominators including a) proper; b) improper; and c) mixed.

1.0	Exposure:	1.1 Teacher presents equivalency charts to demonstrate concept of multiplication/division. 1.2 Teacher explains multiplication/division problem using like fractions $\frac{1}{2} \times \frac{1}{2}$ or $\frac{1}{2} \div \frac{1}{2}$. 1.3 Teacher repeats above problem but uses equivalency chart or objects to explain process.
2.0	Participation:	2.1 Teacher and student(s) talk through problem using equivalency chart or objects $\frac{1}{2} \times \frac{1}{2}$ or $\frac{1}{2} \times \frac{1}{4}$. 2.2 Teacher and student(s) check answer by rote multiplication/division. 2.3 Teacher and student(s) repeat above 2 steps if needed.
3.0	Identification:	3.1 Student(s) explains problem-process and result - using equivalency chart or objects. 3.2 Student(s) checks problem by multiplying/dividing. 3.3 Student(s) works more difficult problems.
4.0	Internalization:	4.1 Student(s) multiplies/divides consistently correctly. 4.2 Student(s) applies skill to other problems.
5.0	Dissemination:	5.1 Student(s) volunteers to teach skill to another student. 5.2 Student(s) prepares learning materials for other students.

B.2: READING CURRICULUM

2.0 Reading

- 2.1 Initial-Ending Letters and Sounds
- 2.2 Vowels-Consonants
- 2.3 Alphabetical Sequence
- 2.4 Dictionary Skills

2.0 READING OBJECTIVES

2.1.0 INITIAL AND ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.1 Objectives for the first Goal: Letter identification of initial/ending letters.

For each taxonomic level the student:

1.0	Exposure:	1.1 becomes exposed to the initial/ending letters in simple words. 1.2 anticipates learning these initial letters of words.
2.0	Participation:	2.1 identifies those initial/ending letters of simple words students can recognize. 2.2 groups together selected words having the same initial/ending letter.
3.0	Identification:	3.1 identifies all initial/ending letters of words. 3.2 discriminates among all initial/ending letters of words to group like letters of words together.
4.0	Internalization:	4.1 consistently identifies all initial/ending letters of words correctly. 4.2 correctly discriminates letters into groupings of same and different.
5.0	Dissemination:	5.1 demonstrates mastery of skill in either verbal or written form. 5.2 volunteers to teach skill to another.

2.0 READING ACTIVITIES

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.1 Activities for the first Goal: Letter identification of initial/ending letters.

1.0	Exposure:	1.1	Teacher identifies initial vowel or consonants in simple words.
		1.2	Teacher matches pictures to words whose initial vowel or consonant have the same letter.
		1.3	Teacher pairs words having the same initial vowel or consonant.
		1.4	Teacher discriminates among several initial vowels or consonants in a list of words.
2.0	Participation:	2.1	Teacher and student(s) together identify pictures and words which start with the same vowel or consonant as ball and bag.
		2.2	Teacher and student(s) group pictures and words together which have the same initial vowel or consonant.
		2.3	Teacher and student(s) identify the same initial vowel or consonants from a list of words.
3.0	Identification:	3.1	Student(s) match pictures to words having the same initial vowel or consonant.
		3.2	Student(s) find words (from reading or spelling) to match initial consonant or vowel of each word in a list.
		3.3	Student(s) identify initial consonant or vowel for words on flash cards (words from the reading vocabulary).
4.0	Internalization:	4.1	Student(s) consistently and correctly identify initial consonant-vowel letter in words.
		4.2	Student(s) place all letters of the alphabet into consonants and vowels groups.
		4.3	Student(s) apply letter identification to all areas of classroom work.
5.0	Dissemination:	5.1	Student(s) make a letter book.
		5.2	Student(s) voluntarily demonstrates to teacher, parents or peers his letter book.

2.0 READING OBJECTIVES

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Objectives for the second Goal: Sound identification for a) hard, soft, and silent consonants; b) other consonants; c) consonant digraphs and trigraphs; and d) ending sounds of s, ed, and silent e.

For each taxonomic level the student:

1.0	Exposure:	1.1 becomes exposed to the sound identification of initial/ending letters of words. 1.2 anticipates learning these initial/ending sounds.
2.0	Participation:	2.1 identifies, with teacher's help, selected initial/ending sounds. 2.2 groups, with teacher's help, selected sounds into categories of same or different.
3.0	Identification:	3.1 identifies all initial/ending sounds. 3.2 identifies the letter which makes a particular sound.
4.0	Internalization:	4.1 identifies correctly initial/ending sounds. 4.2 groups correctly initial/ending sounds into categories of same or different.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to peer.

2.0 READING ACTIVITIES

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS
2.1.2 Activities for the Seond Goal: Sound identification including a) soft and silent consonants; b) other consonants; c) consonant, digraph and trigraphs; and d) ending sounds of s, ed, and silent e.

1.0	Exposure:	1.1	Teacher explains the initial consonant sounds of hard and soft using pictures and words.
		1.2	Teacher groups words into the two categories.
		1.3	Teacher reviews sounds of the hard and soft consonants.
2.0	Participation:	2.1	Teacher and student(s) identify initial/ending, hard and soft consonant sounds looking at labled pictures.
		2.2	Teacher and student(s) group the pictures into the two categories.
		2.3	Teacher and student(s) name other words which fall into either category.
3.0	Identification:	3.1	Student(s) groups words into the categories of hard or soft consonant sounds and tell why.
		3.2	Student(s) gives correct consonant sound when teacher points to words in either category.
		3.3	Student(s) writes letter when its sound is spoken.
		3.4	Student(s) points which letter makes a given sound.
4.0	Internalization:	4.1	Student(s) consistently and correctly identifies initial, hard and soft consonant sounds.
		4.2	Student(s) applies sound recognition to all reading materials.
5.0	Dissemination:	5.1	Student(s) volunteers to make a chart matching initial letters and sounds to pictures.
		5.2	Student(s) makes word pocket chart and word cards for all initial, hard, soft, and silent sounds.

2.0 READING OBJECTIVES

2.2.0 VOWEL/CONSONANT SOUNDS: ONE GOAL

2.2.1 Objectives for the Goal: Vowel and Consonant sounds of: a) short vowel; b) long vowel; c) r-controlled vowels; d) digraph vowel; and e) diphthong vowel.

For each taxonomic level the student:

1.0	Exposure:	1.1 is introduced to short vowel sounds in words. 1.2 expects to learn the sound of short and long vowels.
2.0	Participation:	2.1 identifies the short vowel sounds with teacher. 2.2 names words having that short vowel sound.
3.0	Identification:	3.1 identifies all short vowel sounds. 3.2 writes or states words that name each sound.
4.0	Internalization:	4.1 correctly identifies each short vowel sound. 4.2 applies sound identification skill for short vowels to other related activities.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

2.0 READING ACTIVITIES

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Activities for the Goal: Vowel and consonant sounds of: a) short vowel; b) long vowel; c) r-controlled vowel; d) digraph vowel; and e) diphthong vowel.

1.0	Exposure:	1.1 Teacher identifies the short vowel sounds using pictures and words. 1.2 Teacher matches labeled pictures to the appropriate category for the short vowel sound. 1.3 Teacher pronounces the vowel sounds in each category for selected words. 1.4 Teacher points out different spellings for that sound.
2.0	Participation:	2.1 Teacher and student(s) identify the five short vowel sounds. 2.2 Teacher and student(s) group labeled pictures into the appropriate short vowel sound category. 2.3 Teacher and student(s) write words for each picture in each of the five categories. 2.4 Teacher and student(s) list the various spellings for each sound.
3.0	Identification:	3.1 Student(s) forms five short vowel sound word groups using a series of pictures. 3.2 Student(s) writes words for pictures in each group and pronounces the short vowel sound. 3.3 Student(s) identifies word and vowel sound of words on fraction cards. 3.4 Student(s) lists other words with same sound although spelling of that sound may vary.
4.0	Internalization:	4.1 Student(s) groups any words into the appropriate sound category. 4.2 Student(s) applies comprehension of short vowel sounds to reading all class materials. 4.3 Student(s) consistently and correctly identifies short vowel sounds in words.
5.0	Dissemination:	5.1 Student(s) makes a booklet stating principles for vowel sounds: long, short, silent, diphthong, and digraph. 5.2 Student(s) makes chart of high frequency words under each category.

2.0 READING ACTIVITIES

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS

2.3.1 Activities for First Goal: Alphabetize a) alphabet; and b) first letter of words.

1.0 Exposure:	1.1 Teacher identifies the alphabet in sequence using charts, cards. 1.2 Teacher discriminates between like and unlike letters of the alphabet. 1.3 Teacher uses cards to scramble letters of alphabet then place in sequence. 1.4 Teacher presents capital letters of the alphabet then lower case letters.
2.0 Participation:	2.1 Teacher and student(s) arrange cards with letters of the alphabet on them in alphabetical order. 2.2 Teacher selects several letters of alphabet and asks student(s) to indicate which letter comes first, then to alphabetize those several letters. 2.3 Teacher and student(s) arrange alphabetically a few simple words using only the first letter in the word.
3.0 Identification:	3.1 Student(s) arranges letter cards in alphabetical order. 3.2 Student(s) arranges a set of letters in alphabetical order. 3.3 Student(s) alphabetizes list of simple words.
4.0 Internalization:	4.1 Student(s) applies alphabetical sequence skills to using a teacher selected directory to locate names and phone numbers. 4.2 Student(s) arranges the class list of student last names in alphabetical order for record keeping purposes. 4.3 Student(s) alphabetizes other lists of simple words-reading or spelling list.
5.0 Dissemination:	5.1 Student(s) chooses to alphabetize class list of names or a similar activity. 5.2 Student(s) volunteers to teach alphabetical sequence skills in a cross-age teaching situation.

2.0 READING OBJECTIVES

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS

2.3.1 Objectives for the first Goal: Alphabetize a) alphabet; and b) first Letters of words.

For each taxonomic level the student:

1.0	Exposure:	1.1 watches teacher demonstration of alphabetizing letters. 1.2 expects to learn skill of alphabetizing.
2.0	Participation:	2.1 arranges select letters in alphabetical order (using alphabetical chart, if necessary). 2.2 uses above procedure for a few familiar words.
3.0	Identification:	3.1 arranges set of letters in alphabetical order. 3.2 alphabetizes list of words. 3.3 selects list that is in alphabetical order from multiple lists.
4.0	Internalization:	4.1 alphabetizes consistently correctly. 4.2 applies alphabetical skills to other activities.
5.0	Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

2.0 READING ACTIVITIES

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS
2.3.2 Activities for Second Goal: Alphabetize words using a) second; and b) third letters of words.

1.0	Exposure:	1.1 Teacher presents list of words starting with same letter of alphabet and shows how to alphabetize list on the basis of the second letter in the word, then the third letter. 1.2 Teacher lists students names and begins to alphabetize by last name. 1.3 Teacher presents scrambled words which when alphabetized forms a sentence.
2.0	Participation:	2.1 Teacher and student(s) develop list of familiar words starting with the same letter, then alphabetize list. 2.2 Teacher and student(s) alphabetize student list of last names together. 2.3 Teacher and student(s) alphabetize group of words to form a sentence.
3.0	Identification:	3.1 Student(s) arranges simple list of words, some starting with same letter, in alphabetical order; repeating using more difficult words. 3.2 Student(s) alphabetizes name lists - students, teachers, schools. 3.3 Student(s) alphabetizes words to form a sentence.
4.0	Internalization:	4.1 Student(s) consistently and correctly alphabetizes words, names and sentences. 4.2 Student(s) applies alphabetical sequence skills to other classroom situations.
5.0	Dissemination:	5.1 Student(s) explains or demonstrates to the teacher comprehension of alphabetical sequence skills. 5.2 Student(s) volunteers to alphabetize the class library or a similar project.

2.0 READING OBJECTIVES

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS
2.3.2 Objectives for Second Goal: Alphabetize words using a) second; and b) third letters of words.

For each taxonomic level the student:

1.0 Exposure:	1.1 observes teacher alphabetizing a list of words beginning with the same letter. 1.2 expects to learn this skill of alphabetizing.
2.0 Participation:	2.1 alphabetizes list of words using second letters in words. 2.2 alphabetizes list of last names.
3.0 Identification:	3.1 selects from multiple lists the list of words that is in alphabetical order based on second letters of the words. 3.2 consistently alphabetizes words and names correctly.
4.0 Internalization:	4.1 applies alphabetical skills to other activities.
5.0 Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

2.0 READING OBJECTIVES

2.4.0 DICTIONARY USAGE: THREE GOALS

2.4.1 Objectives for First Goal: Usage of a) syllables; and b) accent marks.

	For each taxonomic level, the student:
1.0 Exposure:	1.1 observes teacher demonstration on using dictionary to tell the syllables and accent mark of a familiar word. 1.2 anticipates learning this dictionary skill.
2.0 Participation:	2.1 uses dictionary, with teacher's help, to divide familiar word into syllables, place accent marks, and pronounce. 2.2 uses above procedure for difficult work.
3.0 Identification:	3.1 uses dictionary to divide words into syllables, place accent marks, and pronounce. 3.2 divides word into syllable, place accent, then confirm with the dictionary entry for that word.
4.0 Internalization:	4.1 uses dictionary consistently correctly. 4.2 applies skill to other activities.
5.0 Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach skill to a peer.

2.0 READING ACTIVITIES

2.4.0 DICTIONARY USAGE: THREE GOALS

2.4.1 Activities for First Goal: Usage of a) syllabication; and b) accent marks.

1.0	Exposure:	1.1 Teacher explains syllabication as a natural division of words as an aid to pronunciation. 1.2 Teacher uses dictionary picture to point out syllabication and accent mark for familiar word. 1.3 Teacher explains that accent mark indicates which syllable is stressed. 1.4 Teacher uses dictionary (or picture of dictionary page) to divide familiar word into syllables and place accent on stressed syllable.
2.0	Participation:	2.1 Teacher and student(s) uses dictionary to divide a familiar word into syllables, place accent, and pronounce. 2.2 Teacher and student(s) uses above procedure for an unfamiliar word. 2.3 Teacher and student(s) place accent mark on proper syllable of familiar word then check using the dictionary.
3.0	Identification:	3.1 Student(s) uses dictionary to divide familiar words and place accent mark, then pronounces. 3.2 Student(s) repeats above procedure using unfamiliar words. 3.3 Student(s) pronounces familiar and unfamiliar words.
4.0	Internalization:	4.1 Student correctly divides a word into syllables and places the accent mark using the dictionary. 4.2 Student(s) pronounces words correctly following accent mark.
5.0	Dissemination:	5.1 Student(s) chooses to make a chart showing words divided into 1, 2, 3, and 4 syllables. 5.2 Student(s) explains chart to teacher.

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.2 Objectives for Second Goal: Usage of a) guidewords; and b) reference skills

	For each taxonomic level the student:
1.0 Exposure:	1.1 watches demonstration of use of guide words as help in locating particular word in dictionary. 1.2 listens to explanation of types and purposes of several references. 1.3 expects to learn both skills.
2.0 Participation:	2.1 looks up word using guide words, with teacher's help. 2.2 uses a reference, with teacher's help, to answer a question.
3.0 Identification:	3.1 uses guide words to locate word. 3.2 uses reference other than dictionary.
4.0 Internalization:	4.1 uses dictionary and other reference correctly. 4.2 applies skills to other activities.
5.0 Dissemination:	5.1 volunteers to prepare instructional materials illustrating use of guidewords and reference skills. 5.2 shows skills to teacher.

2.0 READING ACTIVITIES

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.2 Activities for Second Goal: Usage of a) guidewords ; and b) reference skills.

1.0	Exposure:	1.1 Teacher demonstrates use of guidewords in locating a specific word in dictionary. 1.2 Teacher explains types and purposes of references: dictionary, card catalog, encyclopedia, thesaurus, Guiness Book of World Records, others.
2.0	Participation:	2.1 Teacher and student(s) use dictionary to find a word using the guide words to help. 2.2 Teacher and student(s) use other references to answer certain questions.
3.0	Identification:	3.1 Student(s) uses dictionary guide words to locate word. 3.2 Student(s) identifies proper word from a list which would be found between two guidewords. 3.3 Student(s) uses one other reference to answer a question.
4.0	Internalization:	4.1 Student(s) uses dictionary consistently correctly. 4.2 Student(s) applies dictionary skills to other areas of the curriculum.
5.0	Dissemination:	5.1 Student(s) develops chart explaining use of multiple references to place above classroom reference table. 5.2 Student(s) volunteers to explain chart to teacher or members of the class.

2.0 READING OBJECTIVES

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.3 Objectives for Third Goal: Dictionary usage of a) pronunciation; and b) definition

For each taxonomic level the student:

1.0 Exposure:	1.1 watches demonstration of use of pronunciation key. 1.2 watches process of looking up the definitions of a word and using various meanings of word in sentences. 1.3 anticipates learning these dictionary skills.
2.0 Participation:	2.1 looks up pronunciation of words, with teacher's help. 2.2 defines words, with teacher's help.
3.0 Identification:	3.1 correctly pronounces words using key. 3.2 uses correct meaning of word in a sentence.
4.0 Internalization:	4.1 uses pronunciation and definition skills correctly. 4.2 applies skills to other activities.
5.0 Dissemination:	5.1 demonstrates skills to teacher. 5.2 volunteers to teach skill to another.

2.0 READING ACTIVITIES

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.3 Activities for Third Goal: Dictionary usage of a) pronunciation; and b) definition

1.0	Exposure:	1.1 Teacher explains use of pronunciation key found in the dictionary. 1.2 Teacher demonstrates the determination of proper pronunciation of word using pronunciation key. 1.3 Teacher explains various dictionary definitions for a word using a picture of dictionary page. 1.4 Teacher makes sentences using various meaning of word.
2.0	Participation:	2.1 Teacher and student(s) use dictionary pronunciation key to pronounce unfamiliar word. 2.2 Teacher and student(s) choose word from a list having proper pronunciation. 2.3 Teacher and student(s) look up definition for familiar word having multiple meanings. 2.4 Teacher and student(s) make sentences using various meanings of words.
3.0	Identification:	3.1 Student(s) uses pronunciation key to pronounce word. 3.2 Student(s) chooses word from list having proper pronunciation. 3.3 Student(s) defines word using dictionary. 3.4 Student(s) uses word in sentence using various meanings of word.
4.0	Internalization:	4.1 Student(s) uses pronunciation key and definitions in dictionary correctly. 4.2 Student(s) applies dictionary skills to other areas of curriculum.
5.0	Dissemination:	5.1 Student(s) demonstrates skill to teacher. 5.2 Student(s) volunteers to teach skill to peer.

B.3 SPELLING CURRICULUM

3.0 Spelling

3.1.0 One and Multi-syllable words.

3.0 SPELLING OBJECTIVES

3.1.0 SPELLING: ONE GOAL

3.1.1 Objectives for the Goal: Initial, medial, and ending vowels and consonants having a) same; b) similar; and c) dissimilar sounds.

	For each taxonomic level the student:
1.0 Exposure:	1.1 becomes exposed to the spelling of words. 1.2 anticipates the possibility of learning to spell.
2.0 Participation:	2.1 examines sound-letter relationships. 2.2 decides to attempt to spell some of these sound-letter relationships.
3.0 Identification:	3.1 spells these sound-letter relationships. 3.2 verbalizes spelling of words having these sound-letter relationships.
4.0 Internalization:	4.1 values the importance of being able to spell. 4.2 spells correctly.
5.0 Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to prepare chart showing spelling patterns among words.

3.0 SPELLING ACTIVITIES

3.1.0 SPELLING: ONE GOAL

3.1.1 Activities for the Goal: Initial, medial, and ending vowels and consonants having a) same; b) similar; and c) dissimilar sounds.

1.0	Exposure:	1.1 Teacher identifies pictures whose names have the same beginning consonant sound. 1.2 Teacher distinguishes picture names having the same beginning consonant sound from others.
2.0	Participation:	2.1 Teacher and student(s) name beginning/ending consonant sounds for a group of labeled pictures. 2.2 Teacher and student(s) name two pictures having same beginning/ending sound.
3.0	Identification:	3.1 Student(s) distinguishes from list words that have same beginning/ending sounds. 3.2 Student(s) writes words with same sounds. 3.3 Student(s) spells orally those words.
4.0	Internalization:	4.1 Student(s) spells words with same beginning/ending consonant sounds correctly. 4.2 Student(s) spells words correctly in a spelling bee and in other class activities.
5.0	Dissemination:	5.1 Student(s) volunteers to teach a peer those spelling words. 5.2 Student(s) prepares spelling chart of words having same beginning consonant sounds.

B.4 COMMUNICATION CURRICULUM

4.0 Communication

4.1.0 Manuscript/Cursive Writing

4.0 COMMUNICATION OBJECTIVES

4.1.0 COMMUNICATION: ONE GOAL

4.1.1 Objectives for Goal: Communicate using manuscript writing including: a) capital letters; b) lower case letters; c) numbers; and d) punctuation, format and common abbreviations.

For each taxonomic level, the student:

1.0	Exposure:	1.1 is exposed to the alphabet. 1.2 anticipates the possibility of learning to write.
2.0	Participation:	2.1 verbalizes letters student can identify. 2.2 traces own name.
3.0	Identification:	3.1 writes letters of name and alphabet on assigned place on paper. 3.2 chooses to write own name and alphabet on assigned place on paper.
4.0	Internalization:	4.1 writes name correctly and follows placement format consistently. 4.2 completes writing assignment using basic manuscript/cursive skills.
5.0	Dissemination:	5.1 demonstrates basic manuscript/cursive skills. 5.2 volunteers to share skills with another student.

4.0 COMMUNICATION ACTIVITIES

4.1.0 MANUSCRIPT AND/OR CURSIVE WRITING: ONE GOAL

4.1.1 Activities for Goal: Communicate using manuscript writing including: a) capital letters; b) lower case letters; c) numbers; and d) punctuation, format and common abbreviations.

1.0	Exposure:	1.1 Teacher demonstrates how to hold pencil, crayon, or chalk in acceptable manner. 1.2 Teacher shows directed writing movements.
2.0	Participation:	2.1 Student(s) uses pencil, crayon, or chalk in controlled movements. 2.2 Student(s) traces shapes using template then written examples.
3.0	Identification:	3.1 Student(s) recognizes letters in own name. 3.2 Student(s) traces, then copies own name.
4.0	Internalization:	4.1 Student(s) prints name independently. 4.2 Student(s) chooses to write name and other letters and words.
5.0	Dissemination:	5.1 Student(s) volunteers to prepare chart for the class using his or her best handwriting.

B.5 SOCIAL DEVELOPMENT CURRICULUM

5.0 Social Development

- 5.1 Directed Responsibility Within Class
- 5.2 Directed Responsibility Outside Class
- 5.3 Non-directed Responsibility Within Class
- 5.4 Non-directed Responsibility Outside Class

5.0 SOCIAL DEVELOPMENT OBJECTIVES

5.1.0 DIRECTED RESPONSIBILITY IN CLASS: FOUR GOALS

5.1.1 Objectives for First Goal: Directed responsibility in class.

For each taxonomic level the student:

1.0 Exposure:	1.1 becomes aware of the possibility of selected classroom responsibilities. 1.2 anticipates assuming a social responsibility as part of successful classroom involvement.
2.0 Participation:	2.1 examines what selected social skills entail. 2.2 decides to assume one or more classroom responsibilities.
3.0 Identification:	3.1 assumes selected social responsibility. 3.2 adapts behavior to learn skills or responsibility. 3.3 verbalizes importance of habit assumed in relation to classroom organization and interaction.
4.0 Internalization:	4.1 comes to value the responsibility. 4.2 completes social responsibility correctly and consistently.
5.0 Dissemination:	5.1 demonstrates consistently correct social behavior. 5.2 volunteers to share with a peer how to develop a social skill.

5.0 SOCIAL DEVELOPMENT ACTIVITIES

5.1.0 DIRECTED RESPONSIBILITY INSIDE CLASS: FOUR GOALS

5.1.1 Activities for First Goal: Directed responsibility in class.

1.0 Exposure:	1.1 Student watches filmstrip of class process of deciding upon necessary rules, directions, and responsibilities for successful classroom involvement. 1.2 Teacher and class discuss importance and basis of classroom organization.
2.0 Participation:	2.1 Teacher and class gather information on social skills. 2.2 Student(s) makes a citizenship bulletin board stating classroom directions to follow. 2.3 Student(s) decides to follow directions of writing name on paper in assigned place. 2.4 Student(s) chooses a responsibility they will assume in the classroom also. 2.5 Student(s) constructs a chart listing students and their chosen responsibilities.
3.0 Identification:	3.1 Student(s) begins to follow directions given by teacher and to assume chosen responsibilities. 3.2 Teacher and student(s) review ways to insure success in following rules, directions, and/or responsibilities. 3.3 Student(s) verbalizes importance of following through on assigned directions. 3.4 Student(s) accepts behavior in order to follow through on commitment.
4.0 Internalization:	4.1 Student(s) completes directions and responsibility correctly and consistently. 4.2 Student(s) contributes to establishing new or modifying existing class rules. 4.3 Student(s) applies the following of directions to other class-related procedures.
5.0 Dissemination:	5.1 Student(s) assumes role of aide for a class period to insure responsbile social behavior by the class. 5.2 Student(s) volunteers to teach another how to follow directions, obey rules, and assume a responsibility.

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5.2.0 DIRECTED RESPONSIBILITY OUTSIDE CLASS: FOUR GOALS

5.2.2 Objectives for the Second Goal: Directed responsibility outside class.

	For each taxonomic level the student:
1.0 Exposure:	1.1 becomes aware of school-related responsibilities outside the classroom. 1.2 anticipates assuming a social responsibility as part of successful school involvement.
2.0 Participation:	2.1 gathers information on what various school-related responsibilities entail. 2.2 decides to learn about and assume one of the school-related responsibilities.
3.0 Identification:	3.1 assumes a selected school responsibility. 3.2 adapts behavior to learn skills of responsibility. 3.3 verbalizes importance of school responsibility in relation to overall school and classroom organization.
4.0 Internalization:	4.1 comes to value school responsibility. 4.2 completes assumed responsibility correctly and consistently.
5.0 Dissemination:	5.1 demonstrates behaviorally consistently correct school responsibility. 5.2 volunteers to share with a peer how to develop skills for a school responsibility.

5.0 SOCIAL DEVELOPMENT ACTIVITIES

FOUR GOALS

1.0 Exposure:	1.1 Student(s) identifies responsibilities held by adults.
2.0 Participation:	2.1 Student(s) participates in school responsibilities using school personnel as models. 2.2 Student(s) participates in school responsibilities with peers. 2.3 Student(s) participates in school responsibilities alone. 2.4 Student(s) participates in school responsibility along with its components jobs.
3.0 Identification:	3.1 Student(s) identifies and works with school personnel involved in carrying out the responsibility. 3.2 Teacher and student(s) discuss specific steps to insure the follow-through of the responsibility. 3.3 Student(s) verbalizes importance of following through on assigned tasks of responsibility. 3.4 Student(s) adapts behavior in order to follow through on commitment.
4.0 Internalization:	4.1 Student(s) completes responsibility correctly and consistently. 4.2 Student(s) contributes modifying or establishing existing steps of chosen school responsibility.
5.0 Dissemination:	5.1 Student(s) prepares chart listing responsibilities and using pictures to demonstrate role of chosen responsibility for a class period. 5.2 Student(s) volunteers to explain chart to teacher or to a peer.

5.3.0 NON-DIRECTED RESPONSIBILITY IN CLASS: FOUR GOALS

5.3.3 Objectives for the First Goal: Non-Directed responsibility in class.

For each taxonomic level the student:	
1.0 Exposure:	1.1 becomes aware of the possibility of selected classroom responsibilities. 1.2 anticipates assuming a social responsibility as part of successful classroom involvement.
2.0 Participation:	2.1 examines what selected social skills entail. 2.2 decides to assume one or more classroom responsibilities.
3.0 Identification:	3.1 assumes selected social responsibility. 3.2 adapts behavior to learn skills of responsibility. 3.3 verbalizes importance of habit assumed in relation to classroom organization and interaction.
4.0 Internalization:	4.1 comes to value the responsibility. 4.2 completes social responsibility correctly and consistently.
5.0 Dissemination:	5.1 demonstrates consistently correct social behavior. 5.2 volunteers to share with a peer how to develop a social skill.

1.0 Exposure:	1.1 Student watches filmstrip of class process of deciding upon necessary rules, directions, and responsibilities for successful classroom involvement. 1.2 Teacher and class discuss importance and basis of classroom organization.
2.0 Participation:	2.1 Teacher and class gather information on social skills. 2.2 Student(s) makes a citizenship bulletin board stating classroom directions to follow. 2.3 Student(s) decides to follow directions of writing name on paper in assigned place. 2.4 Student(s) chooses a responsibility they will assume in the classroom also. 2.5 Student(s) constructs a chart listing students and their chosen responsibilities.
3.0 Identification:	3.1 Student(s) begins to follow directions given by teacher and to assume chosen responsibilities. 3.2 Teacher and student(s) review ways to insure success in following rules, directions, and/or responsibilities. 3.3 Student(s) verbalizes importance of following through on assigned directions. 3.4 Student(s) accepts behavior in order to follow through on commitment.
4.0 Internalization:	4.1 Student(s) completes directions and responsibility correctly and consistently. 4.2 Student(s) contributes to establishing new or modifying existing class rules. 4.3 Student(s) applies the following of directions to other class-related procedures.
5.0 Dissemination:	5.1 Student(s) assumes role of aide for a class period to insure responsible social behavior by the class. 5.2 Student(s) volunteers to teach another how to follow directions, obey rules, and assume a responsibility.

5.0 SOCIAL DEVELOPMENT OBJECTIVES

5.4.0 NON-DIRECTED RESPONSIBILITY OUTSIDE CLASS: FOUR GOALS

5.4.4 Objectives for the Fourth Goal: Non-Directed responsibility outside class.

	For each taxonomic level the student:
1.0 Exposure:	1.1 tours playground and cafeteria. 1.2 anticipates meeting the responsibilities of the playground/cafeteria.
2.0 Participation:	2.1 lists rules and responsibilities on playground/in cafeteria. 2.2 makes a chart of these rules and responsibilities.
3.0 Identification:	3.1 begins to assume responsibility and to follow rules for playground/cafeteria. 3.2 discusses ways to adapt behavior to meet responsibilities.
4.0 Internalization:	4.1 consistently assumes responsibilities and follows rules for playground/cafeteria. 4.2 applies steps in assuming responsibility to other non-directed activities in or out of school.
5.0 Dissemination:	5.1 demonstrates skill to teacher. 5.2 volunteers to teach a peer.

5.0 SOCIAL DEVELOPMENT ACTIVITIES

5.4.0 NON-DIRECTED RESPONSIBILITY OUTSIDE CLASS: FOUR GOALS
5.4.4 Activities for the Fourth Goal: Non-Directed responsibility outside class.

1.0 Exposure:	1.1 Teacher and student(s) tour areas where school activities (playground, cafeteria) take place. 1.2 Teacher and student(s) discuss importance of rules and organization of school playground and cafeteria; discuss how to use playground and cafeteria.
2.0 Participation:	2.1 Teacher and student(s) gather information on how to use, including rules, playground and cafeteria. 2.2 Teacher and student(s) duscuss various choices available on the playground or in the cafeteria. 2.3 Student(s) designs charts listing necessary steps to check out playground equipment and/or necessary steps to purchase meal ticket and obtain lunch. 2.4 Teacher and student(s) list basic rules of playground. 2.5 Student(s) chooses to follow through on one option in either or both the playground and cafeteria.
3.0 Identification:	3.1 Teacher and student(s) review ways to insure success in following procedure for playground and/or cafeteria participation. 3.2 Student(s) begins to go through necessary steps for checking out playground equipment and/or obtaining meal ticket and lunches. 3.3 Student(s) adapts behavior in order to integrate successfully into playground and/or cafeteria activities.
4.0 Internalization:	4.1 Student(s) completes playground and/or cafeteria prodecure correctly and consistently. 4.2 Student(s) applies steps in following procedure to other non-directed school activities, such as learning rules of a game.
5.0 Dissemination:	5.1 Student(s) makes a responsibility chart listing and illustrating steps to follow. 5.2 Student(s) volunteers to teach a peer how to follow procedural steps for playground or cafeteria usage.

B.1: MATHEMATICS TEXTS AND CONCRETE MATERIALS

1.0 Mathematics

- 1.1 Basic Computations
- 1.2 Decimals
- 1.3 Time Clock
- 1.4 Fractions

1.0 MATHEMATICS TEXTS

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.1 Texts for First Goal: Addition/Subtraction without borrowing or carrying in units position.

GOALS

	Houghton-Mifflin K T's Ed.	Houghton-Mifflin Bk 1 T's Ed.	Houghton-Mifflin Bk 2 T's Ed.	Houghton-Mifflin Bk 3 T's Ed.
Numeral Identification	2L5	33,37,42,53,55,58, 81	15,17	34,36,53
Counting		39,40	10	
Addition-Numerals 0-9	217,219,221,223, 225,229,227	89,90,91,127,192, 194,199,200,207,211, 263,267,274,350	44	79
Subtraction-Numerals 0-9	231,233,235,237 239	94,95,96,97,98,99, 101,102,103,180,181, 195,203,275	85,73	
Addition and Subtraction		131,133,145,187, 193,201,265	46,51,52,53,65,68	

1.0 MATHEMATICS TEXTS 1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.1 Texts for First Goal: Addition/Subtraction without borrowing or carrying in units position.

GOALS

	Addison-Wesley Bk 1 T's Ed.	Addison-Wesley Bk 2 T's Ed.	Addison-Wesley Bk 3 T's Ed.	Table and Graph Book A Weekly Reader
Numeral Identification	59,60,61,62,63, 65	39,42,43,44	7,10	
Counting	74,77,78	Milliken Ditto Sheets 1-100		16,17,18
Addition-Numerals 0-9	67,88,90,93,94, 96,99,163,264-5, 292-3	62,63,66	37,39	19,20,21
Subtraction-Numerals 0-9				
Addition and Subtraction	153	134,135,138, 139,140	25	42,43,44

1.0 MATHEMATICS CONCRETE MATERIALS

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.1 Concrete Materials for First Goal: Addition/Subtraction without borrowing or carrying in the units position.

GOALS

	Flash Cards	Beans	Cuisenaire Rods	Ditto Sheets-Milliken Gr. 3, First Part
Numeral Identification	"	"	"	
Counting		"	"	
Addition-Numerals 0-9			"	
Subtraction-Numerals 0-9				
Addition and Subtraction				Pps. 3,4,25,29,32

1.0 MATHEMATICS TEXTS 1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.2 Texts for Second Goal: Addition/Subtraction without borrowing or carrying in a) tens, b) hundreds, and c) thousands position.

GOALS

	Houghton-Mifflin Bk 1, T's Ed.	Houghton-Mifflin Bk 2, T's Ed.	Addison Wesley Bk 1, T's Ed.	Addison Wesley Bk 2, T's Ed.	Addison Wesley Bk 4, T's Ed.
TENS Addition	155, 157, 158-9, 160-1, 176, 302	88, 118, 125, 127, 128-9, 144, 149	191-207 inclus., 209, 211, 238-9, 242-3, 246, 280-1, 282-3, 290-1, 298	36, 37, 52-3, 87, 139, 145, 190-1, 195, 205, 208, 211, 213, 292-3	34, 35
Word Problems				148, 150	
UNITS-TENS Addition/Subtraction	279, 305, 308-9	75, 86-7, 107, 137, 145, 147, 148, 163, 165, 170, 175, 179, 191, 197, 201, 204, 221, 239, 322	248-9, 252-3 254-5, 256-7, 266, 272-3	95, 108, 152, 154	24
TENS Subtraction	300-1, 307	180, 183, 184, 192, 207, 209, 210, 213	250-1		49
HUNDREDS - Addition	284, 285, 294, 295, 297, 298	311, 312, 313, 314, 315, 317, 319		54-5, 56-7, 58-9, 221-4	
HUNDREDS - Subtraction		324			51, 57, 58
THOUSANDS - Addition				230-7, 242, 244-5	60
THOUSANDS - Subtraction					52, 62

1.0 MATHEMATICS CONCRETE MATERIALS

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.2 Concrete Materials for Second Goal: Addition/Subtraction without borrowing or carrying in a) tens, b) hundreds, and c) thousands position.

GOALS	Milliken Arithmetic Exercises Grade 3, First Part				
TENS Addition Word Problems	P. 20,26,27				
UNITS-TENS Addition/Subtraction					
TENS Subtraction	P. 27				
HUNDREDS - Addition					
HUNDREDS - Subtraction	P. 27				
THOUSANDS - Addition					
THOUSANDS - Subtraction					

1.0 MATHEMATICS TEXTS 1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.3 Texts for the Third Goal: Addition/Subtraction with borrowing and carrying in a) units; b) tens; c) hundreds; and d) thousands position.

GOALS

	Houghton-Mifflin Bk 2, T's Ed.	Addison-Wesley Bk 3, T's Ed.	Addison-Wesley Bk 4, Stu's Ed.	Addison-Wesley Bk 5, T's Ed.	
UNITS Addition	216,217,218,241, 242,243,247,249, 251,279	50,52	36,37		
Word Problems	teacher constructed				
TENS Addition/Subtraction					
Word Problems					
TENS Subtraction	294,296,297,299, 300,301,303,304, 305,295				
Word Problems	307				
HUNDREDS Addition		51,53,69	78		
Subtraction		61,71,74	78		
THOUSANDS Addition		56,84,179	38,39,40	103	
Subtraction		179	166	106,107	

1.0 MATHEMATICS CONCRETE MATERIALS

1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.3 Concrete Materials for Third Goal: Addition/Subtraction with borrowing and carrying in a) tens; b) hundreds; and c) thousands position.

GOALS				
TENS Addition Word Problems				
TENS Addition/Subtraction Word Problems				
TENS Subtraction Word Problems				
HUNDREDS Addition				
Subtraction				
THOUSANDS Addition				
Subtraction				

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1.0 MATHEMATICS TEXTS 1.1.0 BASIC COMPUTATIONS: FOUR GOALS

1.1.4 Texts for Fourth Goal: Multiplication/Division without borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

GOALS

	Houghton-Mifflin Bk 2, T's Ed.	Addison-Wesley Bk 2, T's Ed.	Addison-Wesley Bk 3, T's Ed.	Addison-Wesley Bk 4, T's Ed.	Addison-Wesley Bk 5, T's Ed.
UNITS					
1. Multiplication	331,332,333,336, 337	298-305,306,308-9		74,79,80,81, 82	
2. Division		318-19		75,94,98	
TENS					
1. Mulitplication	340-1,343,344,345, 351,352,354,355, 357,358,359,363	311	114-15,116-17, 136-7,141-4 147,150,152, 173,180	83,84,85,86, 134	326
2. Division			173,175,180	92,93,95	327
Word Problems				99	
HUNDREDS					
1. Multiplication			233,237	134,135,136	
2. Division				110	
Word Problems			189		
THOUSANDS					
1. Multiplication					
2. Division					

1.0 MATHEMATICS CONCRETE MATERIALS 1.1.0 BASIC COMPUTATIONS: FOUR GOALS

1.1.4 Concrete Materials for Fourth Goal: Multiplication/Division without borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

GOALS	Kenworthy Flash Cards No. 2137			
UNITS 1. Multiplication				
2. Division				
TENS 1. Multiplication				
2. Division				
HUNDREDS 1. Multiplication				
2. Division				
THOUSANDS 1. Multiplication				
2. Division				

1.0 MATHEMATICS TEXTS 1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.5 Texts for Fifth Goal: Multiplication/Division with borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

GOALS	Addison-Wesley Bk 3, T's Ed.	Addison-Wesley Bk 4, T's Ed.	Addison-Wesley Bk 5, T's Ed.	Houghton-Mifflin Bk 4, T's Ed.
UNITS				
1. Multiplication				109,119
2. Division	280,298			
TENS				
1. Multiplication		176,177,178		
2. Division	300, 306	203,204,205, 206,207,209, 207,209,210,211	329	
HUNDREDS				
1. Multiplication	251,252,254,280	139,169,171,182, 183,184,186,190		
2. Division	281	140,141		
3. Word Problems			128,133,143, 333-4	
THOUSANDS				
1. Multiplication	258,260,266	137,138,172,173	113,116,158,332	
2. Division		145,147		
3. Word Problems			129,158	

1.0 MATHEMATICS CONCRETE MATERIALS 1.1.0 BASIC COMPUTATIONS: FIVE GOALS

1.1.5 Concrete Materials for Fifth Goal: Multiplication/Division with borrowing or carrying in the a) units; b) tens; c) hundreds; and d) thousands position.

GOALS

UNITS 1. Multiplication				
2. Division				
TENS 1. Multiplication				
2. Division				
HUNDREDS 1. Multiplication				
2. Division				
3. Word Problems				
THOUSANDS 1. Multiplication				
2. Division				
3. Word Problems				

1.0 MATHEMATICS TEXTS

1.2.0 DECIMALS: ONE GOAL

1.2.1 Texts for Goal: Addition/Subtraction without then with borrowing or carrying in a) tenths; b) hundredths; and c) thousandths.

GOALS

	Houghton-Mifflin Bk 1, T's Ed	Houghton-Mifflin Bk 2, T's Ed	Addison-Wesley Bk 1, T's Ed	Addison-Wesley Bk 2, T's Ed	Addison-Wesley Bk 5, T's Ed
Identification equivalencies	124,165	224,225,227, 228	60,61,230	41	257,258,259, 260
Addition without					
1. tenths					
2. hundredths-thousandths	124,125,310	226,229,230, 231,235,250	60,61,230, 158,216,217, 258,300,301, 320-1,322-3	69,88,160, 168-9	261
Addition with					
1. tenths					262
2. hundredths-thousandths	154,165		300,301,320-1, 322-3	160	330,264
Subtraction without					
1. tenths					
2. hundredths-thousandths	273,311	232,233,234	159,259,310, 323		263
Subtraction with					
1. tenths					263
2. hundredths-thousandths			311		331

1.0 MATHEMATICS CONCRETE MATERIALS

1.2.0 DECIMALS: ONE GOAL

1.2.1 Concrete Materials for Goal: Addition/Subtraction without them with borrowing or carrying in a) tenths; b) hundredths: and c) thousandths.

GOALS	Decimal Ditto Sheets Milliken	Decimal Pocket Board	Decimal and Percentage Board	Dollars and Cents	Decimal Cross Number Puzzle
Identification equivalencies	"	"	"		
Addition without 1. tenths	"		"	"	"
2. hundredths-thousandths		"			
Subtraction without 1. tenths	"		"	"	
2. hundredths-thousandths		"			
Subtraction with 1. tenths	"	"	"	"	"
2. hundredths-thousandths					

1.0 MATHEMATICS TEXTS 1.3.0 TIME CLOCK: ONE GOAL

1.3.1 Texts for Goal: To tell time for: a) hour; b) half hour; c) quarter hour; d) ten minute; e) five minute; and f) one minute intervals.

GOALS	Houghton-Mifflin Bk 1, T's Ed	Houghton-Mifflin Bk 2, T's Ed	Addison-Wesley Bk 1, T's Ed	Addison-Wesley Bk 4, S Ed	Addison-Wesley Bk 2, T's Ed
Hour	140,141	114	232,233,234, 235		
Half Hour	142,143	115			170-1
Quarter Hour		285			173
Ten Minute					173
Five Minute				229	
One Minute					
Application					

1.0 MATHEMATICS CONCRETE MATERIALS

1.3.0 TIME CLOCK: ONE GOAL

1.3.1 Concrete Materials for Goal: To tell time for: a) hour; b) half hour; c) quarter hour; d) ten minute; e) five minute; and f) one minute intervals.

GOALS	Key Math			
Hour				
Half Hour				
Quarter Hour				
Ten Minute				
Five Minute				
One Minute				
Application				

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1.0 MATHEMATICS TEXTS

1.4.0 FRACTIONS: THREE GOALS

1.4.1 Texts for First Goal: Addition/Subtraction without then with borrowing or carrying for fractions with common denominators including a) proper; b) improper; and c) mixed.

GOALS

	Houghton-Mifflin Bk 2, T's Ed	Houghton-Mifflin Bk 4, T's Ed	Houghton-Mifflin Bk 5, T's Ed	Addison-Wesley Bk 2, T's Ed	Addison-Wesley Bk 3, T's Ed	Addison-Wesley Bk 4, T's Ed	Addison-Wesley Bk 5, T's Ed
Identification	272,273,278, 279,280-1, 282-3,286-7, 288-9,290-1			328-9,330-1, 332-3	314,315,316, 317,321	254,255,257, 260,261	
Equivalencies		354,355			318	262,263,264, 265,266,267, 269,274,275, 281,282,283, 284,293,300, 301,304,305, 312	
Improper							243
Addition							
1. proper		338,339,342	276				226,227,242
2. mixed		346,347,348	292,294			310,311,314, 336	243,244,247 248,249
Subtraction							
1. proper		340,341			319		
2. mixed					250		
Addition and Subtraction							
1. proper		344,358	281,296				
2. mixed		359,360,361	297,305				

1.0 MATHEMATICS CONCRETE MATERIALS

1.4.0 FRACTIONS: THREE GOALS

1.4.1 Concrete Materials for First Goal: Addition/Subtraction without then with borrowing or carrying for fractions with common denominators including a) proper; b) improper; and c) mixed.

GOALS	Hayes Ditto Sheets Gr 4, Part 1	Kenworthy Flash Cards No.2134	Croft Math Dittos	
Identification	"		"	
Equivalencies			"	
Improper			"	
Addition 1. Proper		"	"	
2. Mixed		"	"	
Subtraction 1. Proper			"	
2. Mixed			"	
Addition and Subtraction 1. Proper			"	
2. Mixed			"	

1.0 MATHEMATICS TEXTS 1.4.0 FRACTIONS: THREE GOALS

1.4.2 Texts for Second Goal: Addition/Subtraction without then with borrowing and carrying for fractions without common denominators including: a) proper; b) improper; and c) mixed.

GOALS

	Addison-Wesley Book 5, T's Ed	Houghton-Mifflin Book 4, T's Ed	Houghton-Mifflin Book 5, T's Ed	
Equivalencies	186,187,188,189, 197,199,336			
Addition	235,240,337			
1. Proper				
2. Mixed		364		
Subtraction	231,234,240,250, 337			
1. Proper		357		
2. Mixed		361		
Addition and Subtraction				
1. Proper		358	283,284,286,287, 288,291,293,298,	
2. Mixed			299,304,383	

1.0 MATHEMATICS CONCRETE MATERIALS

1.4.0 FRACTIONS: THREE GOALS

1.4.2 Concrete Materials for Second Goal: Addition/Subtraction without then with borrowing and carrying for fractions without common denominators including: a) proper; b) improper; and c) mixed.

GOALS	Fraction Line Set	Fraction Chart	Fraction Flannel Board	Fraction Wheel
Equivalencies				
Addition 1. Proper				
2. Mixed				
Subtraction 1. Proper				
2. Mixed				
Addition and Subtraction 1. Proper				
2. Mixed				

1.0 MATHEMATICS TEXTS 1.4.0 FRACTIONS: THREE GOALS

1.4.3 Texts for Third Goal: Multiplication/Division without and then with borrowing or carrying for fractions with and without common denominators including: a) proper; b) improper; and c) mixed.

GOALS	Addison-Wesley Book 5, T's Ed	Houghton-Mifflin Book 5, T's Ed	
Equivalencies	193,290,291	356,357	
Multiplication 1. Proper and Improper	292-3,295,338	358,360,366,367,369	
2. Mixed	338		
Division	298	362,363,364	

1.0 MATHEMATICS CONCRETE MATERIALS

1.4.0 FRACTIONS: THREE GOALS

1.4.3 Concrete Materials for Third Goal: Multiplication/Division without and then with borrowing or carrying for fractions with and without common denominators including: a) proper; b) improper; and c) mixed.

GOALS

equivalencies				
Multiplication 1. Proper and Improper				
2.. Mixed				
Division				

B.2: READING TEXTS AND CONCRETE MATERIALS

2.0 Reading

2.1 Initial and Ending Letters and Sounds

2.2 Vowel and Consonant Sounts

2.3 Alphabetical Sequence

2.4 Dictionary Usage

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.1 Texts for the First Goal: Letter identification of initial/ending letters.

GOALS

VOWELS	Lippincott Book A	Croft, T Ed Form A	Croft, T Ed Form B	Sullivan, T Ed Books 2-7	
a	1	1,2	1,2		
e	5	1,2	1,2		
i	8	1,2	1,2		
o	11	1,2	1,2		
u	14	1,2	1,2		

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.1 Texts for the First Goal: Letter identification of initial/ending letters.

GOALS CONSONANTS	Lippincott Book A	Croft, T Ed Form A	Croft, T Ed Form B	Sullivan, T Ed Books 2-7	
b		1,2	1,2	26	
c	53	1,2	1,2		
d	30	1,2	1,2		
f	58	1,2	1,2		
g		1,2	1,2		
h	55	1,2	1,2		
j		1,2	1,2		
k		1,2	1,2	81	
l		1,2	1,2	81	
m	18	1,2	1,2		
n	22	1,2	1,2		
p	45	1,2	1,2		
q		1,2	1,2		
r	25	1,2	1,2	29,81	
s	28	1,2	1,2		

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2.0 READING CONCRETE MATERIALS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.1 Concrete Materials for the First Goal: Letter identification of initial/ending letters.

GOALS

	Basic Goals #1 pps. 1-51	Basic Goals #2 pps. 1-22	Wall Alphabet	Bingo Game	Learning Phonics Milliken Gr. 3	
VOWELS						
a						
e		"				
i		"				
o		"				
u		"				
CONSONANTS						
b		"				
c		"				
d		"				
f		"				
g		"				
h		"				
j		"				
k		"				
l		"				
m		"				
n		"				
p		"				
q						
r						
s						

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound identification for c) consonant digraphs and trigraphs.

GOALS

Consonant Digraphs	Lippincott Book A	Lippincott Book B	Croft, T Ed Form A	Croft, T Ed Form B	Sullivan, T Ed Books 2 - 7	SRA IIa	SRA IIb
br, gr, dr	49	49	13	12	84,97,123,127,141	Or 7,11, OI 7,11 Red 11, T 4,9	A 3,7,11
ch			12,13	12	34,67,74,182,245	Or 3,5,10,12, OI 3,5,10,12, T 2,7,12	B 1,5,9,A 2,6,10
ck		35			38,74,123,127,182, 245		
cl				12	215,258	Or 6,10,12, OI 6,10,12, T 8	B 2,6,10, A 1,5,9
cr			13	12	101,141	Or 7,10,11, OI 7, 11, Red 11, T 4,9	B 3,7,11, A 3,7, 11
ct					335		
dw						Br 8, T 9	A 4,8,12
fl,sl,gl,bl			13	12	96,101,123,140,159	Or 6,10,12, OI 6,10,12,T 8	B 2,6,10, A 1,5,9
fr				12	282,325	Or 7,10,11, OI 7,11, Red 11, T 4,9	B 3,7,11, A 3,7, 11

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound Identification for c) consonant digraphs and trigraphs

GOALS

Consonant Digraphs (continued)	Lippincott Book A	Lippincott Book B	Croft, T Ed Form A	Croft, T Ed Form B	Sullivan, T Ed Books 2 - 7	SRA IIa	SRA IIb
ft					160,235		
gh			14	14		Gr 10, Red 3, 8, T 2,7,12	R 3,7,11, Gn 8, 11, A 2,6,10
lf					213,245,259		
lk			14	14	99,142		
lp					150		
lt					340		
nd			14		60,182,235	T 4	
ng				14	32,74,182,187,245	Br 6,11	
nk		37	14	14	123,127,129		
ph						T 2,7,12	R 3,7,11, Gr 8,11, A 2,6,10
pl						Or 6,10,12, Ol 6,10,12, T 3	B 2,6,10, A 1,5,9
pt					339		
qu			12,13			Br 8	
rt						T 3,8	A 1,5,9
sc						Red 11, T 4	A 4,8,12
sh			12,13	12	74,127	Or3,5,10,12Ol3, 5,10,12,T2,7,8, 12	Bl,5,9,A2,6,10

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound identification for c) consonant digraphs and trigraphs.

GOALS Consonant Digraphs (cont.)	Lippincott Book A	 Book B	Croft, T Ed Form A	 Form B	Sullivan, T Ed Books 2-7	SRA IIa	SRA IIb
sk			13,14	12	101,140,150		
sm			13		325	Or 7,11, OI 7,11 Red 11, T 9	Br 4,8,12, A 1,4, 5,8,9,12
sn			12,13		84		B 4,8,12
sq			12				
sp, mp	51	51	13	12,14	97,123,140	Or 7,11, OI 7,11. Red 11, T 4	B 4,8,12, A 4, 8,12
st, mp (st ending sound)					84,123,182, 209, 235, 259	Br 8	B 1,5,9 A 1,5,9
st, nt (st beginning sound)		41	13,14	12,14	28,60,235	Or 3,5,10,12 OI 3,5,11,12 R 11, T 2,3,4, 7,8,12	B 4,8,12
sw			12		158	Or 7,11, OI 7, 11, Br 8, Rd 11, T 2,3,4,7,8,12	B 4,8,12, A 4,8, 12
th			12,13, 14	12	67,74	Or 3,5,10,12 OI 3,5,10,12 T 2,12	A 2,6,10
tr, dr, pr, br			12	12	37,84,123,127	Or 7,10,11, OI 7, 11, Red 11, T 3,4	B 3,7,11, A 1,3,5, 7,9
tw			12		325	Br 8, T 9	A 4,8,12

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound identification for c) consonant digraphs and trigraphs.

GOALS

Consonant Digraphs (Cont.)	Lippincott Book A	Lippincott Book B	Croft T Ed Form A	Croft T Ed Form B	Sullivan T Ed Books 2-7	SRA IIa	SRA IIb
wh			12	12	218	Or 3,5,10,12 Ol 3,5,10,12 T 2,7,12	B 1,5,9, A 2,6,10
xt					259		

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound identification of c) consonant digraphs and trigraphs.

GOALS

Consonant Trigraphs	Lippincott Book A	Lippincott Book B	Croft T Ed Form A	Croft T Ed Form B	Sullivan T Ed Books 2-7	SRA IIa	SRA IIb
dge			14				
scr		12	12		84	Gr 1, Red 12, T 5,10	R 2,6,10
shr			13				
spl		12	13		105,140	Gr 1, Red 12, T 5	R 2,6,10
spr		12	13		347	Gr 1, R 12, T 5,10	R 2,6,10, A 6,10
squ		12			324	Or 3,11, Ol 7, 10, Gr 1, Rd 12, T 5,10	A 6,10
tch					82,312		
thr		12	12,13			Gr 1, Red 12, T 5,10	R 2,6,10 A 6,10

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS
2.1.2 Texts for the Second Goal: Sound Identification of a) hard, soft, and silent consonants.

GOALS

Hard, Soft, and silent consonants	Lippincott Book A	Lippincott Book B	Croft T Ed Form A	Croft T Ed Form B	Sullivan T Ed Books 2-7	SRA IIa	SRA IIb
c-hard and soft	53		6,8	7,8	65,67	Or 2,3,5,8,9, OI 1,2,3,4,5, 6,8,9, Gr 3	B 1,5,9
g-hard and soft	41	82	6,8	7,8,10	65,380	"	B 3,4,7,8,11,12
j-hard and soft			6,8	4,7,8	321	"	B 2,6,10
s-hard and soft			4,6,10	4,7,8, 10	65,67,125	"	B 4,8,12
x-hard and soft			7,8		211	"	

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound identification of a) hard, soft, and silent consonants.

GOALS

Other Consonant Counds	Lippincott Book A	Lippincott Book B	Croft T Ed Form A	Croft T Ed Form B	Sullivan T Ed Books 2-7	SRA IIa	SRA IIb
b		28	4,6,10	4,7,8, 10	65,125	Or 2,3,5,8,9, Ol 1,2,3,4,5, 6,8,9, Gr 3	B 2,6,10
d			4,6	7,8,10	65	"	B 4,8,12
f	58		4,6,8, 10	7,8,10	65	"	B 2,6,10
h	55		4,6	4,7,8	67	"	B 2,6,10
I and II - silent	21		6,7	4,7,8	30,125,129,182	"	
m			4,6	4,7,8, 10	65,67	"	B 4,8,12
n			4,6,8	4,7,8 10	65,380	"	B 3,7,11
p	45		4,6,10 11	4,7,8, 10	65,125	"	B 2,6,10
r			4,6,11	4,7,8, 10	65,125	"	B 3,7,11
t			4,6	4,7,8, 10	65,380	"	B 2,6,10
v			6,8	7,8	163,195	"	
w		7	6,7	7,8	100,127,138	"	
y			6,8,11	7,8	275,311,334	"	
z			6,10	7,8,10		"	

2.0 READING TEXTS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS

2.1.2 Texts for Second Goal: Sound identification of d) ending sounds of s, ed, and silent e.

GOALS

Ending sounds s, ed, silent e	Lippincott Book A	Lippincott Book B	Croft T Ed Form A	Croft T Ed Form B	Sullivan T Ed Books 2 - 7	SRA IIa	SRA IIb
silent e		10	10,11 20,23		163,195	T1,11,A 3,4,8, P 7	T 1,5,9, S 2,6,10
s		10	10,23			Gr 7,12, Red 5	GR 1,6,11, T 4,8, 12, Go 2,4
ed			23			Br 4,10, Gr 7,12 Red 5	Gr 1,6,11

2.0 READING CONCRETE MATERIALS

2.1.0 INITIAL-ENDING LETTERS AND SOUNDS: TWO GOALS
2.1.2 Concrete Materials for Second Goal: Sound identification of c) consonant digraphs.

GOALS

	Weekly Reader Phonic and Word Power Skills Bk C, pps. 5,6,7,23,28	Building Dictionary Skills Hays, Level 2	Flash Cards Hayes
a. hard, soft, and silent consonants	"		
b. other consonants			
c. consonant digraphs and trigraphs			
d. ending sounds of s, ed, and silent e		"	"

2.0 READING TEXTS

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Texts for the Goal: Vowel and consonant sounds of a) short vowels.

GOALS

short vowels	SRA Ia	Ib	Croft Form A	Form B	Sullivan Bks 2-7	SRA IIa	SRA IIb
a			15,16, 17,19	15,16, 17,20 30	61,64,70,75,119, 133,177,185	BI 3,4,5,6,7,8, 9,10,11,12, Br 1, 2,3,5,8,9, Gr 8, 9, Red 1,2,6,7, T 1,6, Gold 1,6, 11, A 3,4,5, P 11	G 1,6,11, T 1, Rose 1,5,9
e			15,16 17,19	15,16 17,20 30	41,42,75,83,119, 133,138,177,185		
i			15,16 17,19	15,16 17,20 30	61,64,70,75,119, 133,138,177,185		
o			15,16 17,19	15,16 17,20 30			
u			15,16, 17,19	15,16, 17,20 30	346,379,387		

2.0 READING TEXTS

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Texts for the Goal: Vowel and consonant sounds of b) long vowels.

GOALS

long vowels	SRA Ia	Ib	Croft Form A	Form B	Sullivan Books 2-7	SRA IIa	SRA IIb
a			15,16 17,19	15,16 17,20 30		Blue 1,2,4,5,6, 7,8,9,10,11,12, Brown 1,2,3,5, 8,9, Green 8,9, Red 1,2,6,7 T 6, Gold 1,6,11, A 3 4,5, P 11	G 1,6,11, T 1 Rose 1,5,9
e			15,16 17,19	15,16 17,20 30	285,322		
i			15,16 17,19	15,16 17,20 30		Blue 1,2,4,5,6, 7,8,9,10,11,12, Brown 1,2,3,5, 8,9, Green 8,9, Red 1,2,6,7, T 6, Gold 1,6,11, A 3, 4,5, P 11.	
o			15,16 17,19	15,16 17,20 30			
u			15,16 17,19	15,16 17,20 30			

2.0 READING TEXTS

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Texts for the Goal: Vowel and consonant sounds of c) r-controlled vowels.

GOALS

r-controlled	SRA Ia	Ib	Croft Form A	Form B	Sullivan Books 2-7	SRA IIa	SRA IIb
ar			17,20	20,30	280,323	Br 10, Gr 3, Go 2,7, A 1	T 4,8,12, P 1,5,9
er			17,20				
ir			17,20		272,323		
or			17,20				
ur			17,20				

2.0 READING TEXTS

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Texts for the Goal: Vowel and consonants sound of d) dipthongs.

GOALS

Digraph Vowels	SRA Ia	Ib	Croft Form A	Form B	SRA IIa	SRA IIb
aw			18	18	Br 6,11, Gr 1, Go 7	T 3,7,11, G 8, 11, P 3,7,11 (SRW)
ea			18,20	18	R 1,6, Go 6, A 5, P 7	T 1,5,9, A 2, 6, 10
ee			18, 20	18, 20		
ew					Br 6,11, Gr 4, Go 7, A 1	T 3,7,11, G 8, 11, P 3, 7,11 (new)
oa				18	Red 1,6, Go 6, A 5	T 1,5,9, S 2, 6,10
oe				20		
oo			18	18		254
ow			18	18	Br 6,11, Gr 4, Go 2,7	G 8,11, P 3, 7,11

2.0 READING TEXTS

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Texts for the Goal: Vowel and consonant sounds of a) diphthong vowels.

GOALS

Diphthong vowels	SRA Ia	Ib	CROFT Form A	Form B	SRA IIa	SRA IIb
ai			18	18,20	Red 1,6, A 5, P 7	T 1,5,9, S 2, 6,10 (first vowel long, second silent)
au					Gr 10, Red 3,8, Go 7, A 1	G 8,11, P 3, 7,11
ie					Go 6	T 9, S 2,6,10
oi			18,20	18		
ou			18,20	18	Br 6,11, Gr 4, 10, Red 3,8, Go 7	T 3,7,11, G 8, 11, P 3,7,11

2.0 READING CONCRETE MATERIALS

2.2.0 VOWEL-CONSONANT SOUNDS: ONE GOAL

2.2.1 Concrete Materials for the Goal: Vowel and consonant sounds of a) short vowels; b) long vowels; c) r-controlled vowels; d) digraph vowels; and e) diphthong vowels.

GOALS

	More Fun With Words Hayes	Learning Phonics Milliken Gr. 3	
a) short vowels	pp I-II	Part I	
b) long vowels	pp I-II	Part I	
c) r-controlled vowels			
d) digraph vowels			
e) diphthong vowels			

2.0 READING TEXTS

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS

2.3.1 Texts for First Goal: Alphabetize a) alphabet; and b) first letters of words.

GOALS

	SRA IIa	SRA IIb	Basic Goals in Spelling No. 1
a) Letters of Alphabet			
b) First Letters of Words	Gold 3,4,8,13	Red 3,7,11, Blue 5,9	3,9,10,11,12,13,15,16,18, 19,22,24,25

2.0 READING CONCRETE MATERIALS

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS

2.3.1 Concrete Materials for the First Goal: Alphabetize a) alphabet; and b) first letters of words.

GOALS

	Crossword Puzzle Dr. Herr	Building Dictionary Skills, Level I
a) Letters of the Alphabet	"	
b) First Letters of Words		pps. 1-2

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2.0 READING TEXTS

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS

2.3.2 Texts for Second Goal: Alphabetize words using a) second; and b) third letters of words.

GOALS

	SRA IIa	SRA IIb
a) Second Letter	Gold 4,9, A 10	R 4,8,12, P 2,6,10
b) Third Letter	Gold 4,9, A 10	R 4,8,12

2.0 READING CONCRETE MATERIALS

2.3.0 ALPHABETICAL SEQUENCE: TWO GOALS

2.3.2 Concrete Materials for the Second Goal: Alphabetize words using a) second; and b) third letters of words.

GOALS

	Crossword Puzzle Dr. Herr	
a) Second Letter	"	
b) Third Letter		

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2.0 READING TEXTS

2.4.0 DICTIONARY USAGE: THREE GOALS

2.4.1 Activities for First Goal: Usage of: a) syllabication and b) accent marks.

GOALS

	Croft, T. Ed. Form A	Form B	SRA IIa	SRA IIb
a) Syllables	27	29	Green 11, Red 4,9,12, T 5, Gold 4,9, A3, 4,6,8,10, P 11	T 2,6,10, Gold 6,9,12, A 4,8, 12, P 2,6,10 Rose 4,8,12, S 4, 8,12
b) Accent marks			Gold 4, A 10	Gold 6,9,12

2.0 READING CONCRETE MATERIALS

2.4.0 DICTIONARY USAGE: THREE GOALS

2.4.1 Concrete Materials for First Goal: Usage of: a) syllabication; and b) accent marks.

GOALS

a) Syllabication	
b) Accent Marks	

2.0 READING TEXTS

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.2 Texts for Second Goal: Usage of: a) guidewords and b) reference skills.

GOALS

	Building Dictionary Skills, Level 1 Milliken	Building Dictionary Skills, Level 2 Milliken	Back to Basics Mc-Graw-Hill
a) Guidewords	6,7,8		
b) Reference Skills			

2.0 READING CONCRETE MATERIALS

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.2 Concrete Materials for Second Goal: Usage of: a) guidewords; and b) reference skills.

GOALS

a) Guidewords	
b) Reference Skills	

2.0 READING TEXTS

2.4.0 DICTIONARY USAGE: THREE GOALS
2.4.3 Texts for Third Goal: Dictionary Usage of a) pronunciation; and b) definition.

GOALS

	SRA IIa	SRA IIb
a) Pronunciation		
b) Definititons	Red 11, T 6,12, Gold 2, P 4,5,6, R 2,3,4,5,6,7, 10, 11, 12	

B.3: SPELLING

3.0 Spelling

3.1 Sound Relationships of One and Multi-syllable words for Initial, Medial, and ending Consonants and Vowels having a) Same: b) Similar; and c) Dissimilar Sounds.

3.0 SPELLING TEXTS

3.1.0 SPELLING: ONE GOAL

3.1.1 Texts for the Goal: Initial, medial, and ending vowels and consonants having a) same; b) similar; and c) dissimilar sounds.

GOALS

	Ca State Series Kottmeyer and Ware Bk 2, T's Ed	Ca State Series Kottmeyer and Ware Bk 3, T's Ed	Ca State Series Kottmeyer and Ware Bk 4, T's Ed	Ca State Series Kottmeyer and Ware Bk 5, T's Ed	Basic Goals In Spelling Book 2
Same Initial Consonant Sound	Unit 1,2,11, 25,26,29	Unit 11,14,16 17,27,29,33	Unit 4,5,9, 10,11,27,32	Unit 4,10,15 19,29,21,32, 33	
Same Ending Consonant Sound	Unit 9,10,11 13,23,26,27 28,33	Unit 5,14,16, 17,19,21,22, 23	Unit 5,7,9, 10,11,15,16, 17,20,21,28, 33	Unit 4,17,19, 20,21,22,23, 25,34,35	
Same Medial Consonant Sound	Unit 25,34	Unit 17,20,29	Unit 9,10,15, 26,29	Unit 10,19,20, 21	
Same Initial Vowel Sound	Unit 3,4,6,7, 8,9,10,13,15	Unit 1,2,25,33	Unit 14	Unit 15,32,33	Page 160
Same Medial Vowel Sound	Unit 3,4,5,7, 8,9,10,13,14, 15,16,20,21, 22,32	Unit 1,2,3,4, 7,8,9,10,13, 15,25,28,29	Unit 1,2,3,13, 14,15	Unit 1,2,5,7, 8,9	
Same Ending Vowel Sound	Unit 14,16,17, 19,21,22,32, 35	Unit 19,21,22, 23	Unit 13,14,15, 16,17,21	Unit 3,17,22, 23,25,34,35	

3.0 SPELLING CONCRETE MATERIALS 3.1.0 SPELLING: ONE GOAL

3.1.1 Concrete Materials for the Goal: Initial, medial, and ending vowels and consonants having a) same; b) similar; and c) dissimilar sounds.

GOALS

	Back to Basics McGraw-Hill	Word Game
Same Initial Consonant Sound		
Same Ending Consonant Sound		
Same Medial Consonant Sound		
Same Initial Vowel Sound		
Same Medial Vowel Sound		
Same Ending Vowel Sound		

B.4: COMMUNICATION

4.0 Communication

4.1 Manuscript and Cursive Writing Skills

4.0 COMMUNICATION TEXTS

4.1.0 COMMUNICATION: ONE GOAL

4.1.1 Texts for Goal. Communicate using manuscript writing including: a) capital letters; b) lower case letters; c) numbers; and d) punctuation, format and common abbreviations.

GOALS

	Noble Grade 2, S Ed	Noble Grade 3, S Ed	Noble Grade 5, S Ed
Manuscript			
1. Capital	9,12,14,20,21, 22,24,51		
2. Lower case	11,12,14,16,17,18, 19,23,57		
3. Both capital and lower case	25,26,27,29,30, 31,32,33	10	
4. Numbers	52,53,56		
5. Check lists and reviews-punctuation, format and abbreviations	13,28,35,43,54, 55,59,60,61		
Cursive			
1. Transition-Capital Transition-Lower Case		17,18,19,20,21 12,13,14,15	
2. Capital		50	
3. Lower case		48,49,53	19,20,21,22,23,24,25, 26,27
4. Both capital and lower case		23,24,25,26,27, 28,29,30,31,32, 33,34,35,36,37, 38,39,40,41,42, 43,44,45,46,47, 51,52	
5. Numbers		54	17,19,34,35
6. Check Lists-punctuation, format and abbreviations		59,62,63,64	16,36,37,38,40,41,43, 48

4.0 COMMUNICATION CONCRETE MATERIALS

4.1.0 COMMUNICATION: ONE GOAL

4.1.1 Concrete Materials for Goal: Communicate using manuscript writing including: a) capital letters; b) lower case letters; c) numbers; and d) punctuation, format and common abbreviations.

GOALS

	Let's Write Cursive Hayes #2	Individualized Reading - Hayes Intermediate Gr.	Learn to Write Letter Cards Milton Bradley	Sequential Development Alphabet Cards
Cursive 1. Transition-capital Transition-lower case				
2. Capital	8,12,23,24,25, 26	"	"	"
3. Lower Case	1,2,3,4,5,6,7, 10,11,13	"	"	"
4. Both capital and lower case	34,35,36,37, 38,39,40,41, 45,46,47	"	"	"
5. Numbers				
6. Check Lists - punctuation, format, and abbreviations				

4.0 COMMUNICATION CONCRETE MATERIALS

4.1.0 COMMUNICATION: ONE GOAL

4.1.1 Concrete Materials for Goal: Communicate using manuscript writing including: a) capital letters; b) lower case letters; c) numbers; and d) punctuation, format and common abbreviations.

GOALS			
Manuscript 1. Capital			
2. Lower Case			
3. Both Capital and Lower Case			
4. Numbers			
5. Check Lists and Reviews - Punctuation, format and abbreviations			

B.5: SOCIAL DEVELOPMENT

5.0 Social Development

5.1 Directed Responsibility within the Classroom

5.2 Directed Responsibility outside the Classroom

5.3 Non-Directed Responsibility within the Classroom

5.4 Non-Directed Responsibility outside the Classroom

5.0 SOCIAL RESPONSIBILITY TEXTS 5.1.0 DIRECTED RESPONSIBILITY IN CLASS: FOUR GOALS
5.1.1 Texts for First Goal: Directed responsibility in class.

GOALS

	About You and Me Grade 2, T's Ed	About Values Book 3, T's Ed	Seeking Values Book 4, T's Ed	Sharing Values Book 5, T's Ed
Directed In Class	71,117	37,59	75,169	
Directed Out of Class	17,71	23,32,165	172,241	7,12,75,245
Non-Directed In Class	99,113			113
Non-Directed Out of Class	85,128,133	35,85,136	162	12,56,65,149, 169,256,293

5.0 SOCIAL RESPONSIBILITY CONCRETE MATERIALS

5.1.0 DIRECTED RESPONSIBILITY IN CLASS: FOUR GOALS

5.1.1 Concrete Materials for First Goal: Directed responsibility in class.

GOALS			
Directed In Class			
Directed Out of Class			
Non-Directed In Class			
Non-Directed Out of Class			

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GOALS

	About You and Me Grade 2, T's Ed	About Values Book 3, T's Ed	Seeking Values Book 4, T's Ed	Sharing Values Book 5, T's Ed
Directed Out of Class		165	172,241	75,245

5.0 SOCIAL RESPONSIBILITY CONCRETE MATERIALS

5.2.0 DIRECTED RESPONSIBILITY OUTSIDE CLASS: FOUR GOALS

5.2.2 Concrete Materials for the Second Goal: Directed responsibility outside class

GOALS			
Directed Out of Class			

5.0 SOCIAL RESPONSIBILITY CONCRETE MATERIALS

5.3.0 NON-DIRECTED RESPONSIBILITY IN CLASS: FOUR GOALS

5.3.3 Concrete Materials for the First Goal: Non-Directed responsibility in class.

GOALS			
Non-Directed In Class			

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5.0 SOCIAL RESPONSIBILITY TEXTS 5.3.0 NON-DIRECTED RESPONSIBILITY IN CLASS: FOUR GOALS
5.3.3 Texts for the First Goal: Non-Directed responsibility in class.

GOALS

	About You and Me Grade 2, T's Ed	About Values Book 3, T's Ed	Seeking Values Book 4, T's Ed	Sharing Values Book 5, T's Ed
Non-Directed in Class	99,113			113

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GOALS

	About You and Me Grade 2, T's Ed	About Values Book 3, T's Ed	Seeking Values Book 4, T's Ed	Sharing Values Book 5, T's Ed
Non-Directed Out of Class	85, 133	35	162	12, 56, 65, 169, 256, 293

5.0 SOCIAL RESPONSIBILITY CONCRETE MATERIALS

5.4.0 NON-DIRECTED RESPONSIBILITY OUTSIDE CLASS: FOUR GOALS

5.4.4 Concrete Materials for the Fourth Goal: Non-Directed responsibility outside class

GOALS

	Film	Film	Film	Filmstrip/Record
Non-Directed Out of Class	Fires and Tools of Firemen	Getting Along With Others: Personal Relationship McGraw/Hill	Beginning Responsibilities: Learning to Follow Instructions - Coronet Primary Level	Teaching Children Values Educational Act., Inc. Primary and Intermediate Levels

APPENDIX C

STUDENT RECORD DEFINITION

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
I.	STATUS: STUDENT AND CLASS					
01	Student I.D. Number	1-2	2	01-99	Unique Code for Study	
02	Classroom Number	3	1	1-9	1=EMR-C; 2=EH-C; 3=EMR-E; 4=EH-E	Project MEET
03	Classroom Type	4	1	1-2	1=Control· 2=Experimental	
04	Program Type	5	1	1-2	1=EMR; 2=EH	
05	Blank	6-7	2			
06	Blank	8-9	2			
II.	HOME BACKGROUND:					
07	Age (months)	10-12	3	001-999	(1975-Birth Year) x 12 + (11-Birth Month)	Student Cummulative Folder
08	Sex	13	1	1-2	1=M; 2=F	Student Cummulative Folder
	Ethnicity:					
09	Spanish Surname	14	1	1-2	1=No; 2=Yes	Student Cummulative Folder
10	White	15	1	1-2	1=No: 2=Yes	Student Cummulative Folder

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
11	Black	16	1	1-2	1=No; 2=Yes	Student Cummulative Folder
12	Oriental	17	1	1-2	1=No; 2=Yes	Student Cummulative Folder
13	American Indian	18	1	1-2	1=No; 2=Yes	Student Cummulative Folder
14	All Other	19	1	1-2	1=No; 2=Yes	Student Cummulative Folder
15	Ethnic Code	20	1	1-6	1=SS; 2=W; 3=B; 4=O; 5=AI; 6=AO	Student Cummulative Folder
16	Blank	21-22	2			
17	Blank	23-24	2			
III.	LEARNING STYLE-MODE:					
18	Auditory	25	1		1=not dominant; 2=dominant	WRAT Spelling Test
19	Visual	26	1		1=not dominant; 2=dominant	WRAT Spelling Test
20	Kinesthetic	27	1		1=not dominant; 2=dominant	WRAT Spelling Test
21	Learning Mode Code	28-29	2		1=Auditory; 2=Visual; 3=Kinesthetic	WRAT Spelling Test
22	Listening (understanding instructions)	30	1		1=Extremely Below; 2=Severely Below; 3=Below Average;	WRAT Spelling Test

V.NO	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
23	Social Adaptive Behavior (degree of dependency)	31	1		1=Extremely Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average	WRAT Spelling Test
24	Approach to Learning (degree of reflectivity)	32	1		1=Extremely Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average	WRAT Spelling Test
IV.	EDUCATIONAL:					
25	ADA (1975-76)	33-34	2	01-99	Total Count in Days	Student Cummulative Folder
26	Total Years in OMSD	35-36	2		Count (K to Present)	Student Cummulative Folder
27	Total Years in EH, EMR, LDG Program	37-38	2		Count (K to Present)	Student Cummulative Folder
28	Total Years in OMSD EH, EMR, LDG Program	39-40	2		Count (K to Present)	Student Cummulative Folder
29	Blank	41-42	2			
V.	PROGRAM:					
	MATHEMATICS					
	Basic Computations:					
30	Time	43-45	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log

V. NO	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
31	Textbook Usage	46	1	0-9	Average/Week	Student Weekly Log
32	Concrete Materials Usage	47-48	2	00-99	Average/Week	Student Weekly Log
33	Achievement Rating	49	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
34	Attitude Rating	50	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
35	Self-Worth Rating	51	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Decimals					
36	Time	52-54	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
37	Textbook Usage	55	1	0-9	Average/Week	Student Weekly Log
38	Concrete Material Usage	56-57	2	00-99	Average/Week	Student Weekly Log
39	Achievement Rating	58	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
40	Attitude Rating	59	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
41	Self Worth Rating	60	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Time Clock					324
42	Time	61-63	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
43	Textbook Usage	64	1	0-9	Average/Week	Student Weekly Log
44	Concrete Materials Usage	65-66	2	00-99	Average/Week	Student Weekly Log

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM
45	Achievement Rating	67	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
46	Attitude Rating	68	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
47	Self-Worth Rating	69	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
48	Blank	70-71	2			
	Card Number	79-80	2	01	Constant	

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	STUDENT ID REPEATED	1-2	2		See Card 1	
	Fractions					
49	Time	3-5	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
50	Textbook Usage	6	1	0-9	Average/Week	Student Weekly Log
51	Concrete Materials Usage	7-8	2	00-99	Average/Week	Student Weekly Log
52	Achievement Rating	9	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
53	Attitude Rating	10	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
54	Self-Worth Rating	11	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Math Average					
55	Time	12-14	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
56	Textbook Usage	15	1	0-9	Average/Week	Student Weekly Log
57	Concrete Materials Usage	16-17	2	00-99	Average/Week	Student Weekly Log
58	Achievement Rating	18	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
59	Attitude Rating	19	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
60	Self-Worth Rating	20	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
61	Blank	21-22	2			
	READING					
	Beginning-Ending Sound:					
62	Time	23-25	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
63	Textbook Usage	26	1	0-9	Average/Week	Student Weekly Log
64	Concrete Materials Usage	27-28	2	00-99	Average/Week	Student Weekly Log
65	Achievement Rating	29	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
66	Attitude Rating	30	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
67	Self-Worth Rating	31	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Vowel-Consonant Sounds:					
68	Time	32-34	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
69	Textbook Usage	35	1	0-9	Average/Week	Student Weekly Log
70	Concrete Materials Usage	36-37	2	00-99	Average/Week	Student Weekly Log

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
71	Achievement Rating	38	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
72	Attitude Rating	39	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
73	Self-Worth Rating	40	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Alphabetical Sequence:					
74	Time	41-43	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
75	Textbook Usage	44	1	0-9	Average/Week	Student Weekly Log
76	Concrete Materials Usage	45-46	2	00-99	Average/Week	Student Weekly Log
77	Achievement Rating	47	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
78	Attitude Rating	48	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
79	Self-Worth Rating	49	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Dictionary Skills:					
80	Time	50-52	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
81	Textbook Usage	53	1	0-9	Average/Week	Student Weekly Log
82	Concrete Materials Usage	54-55	2	00-99	Average/Week	Student Weekly Log

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
83	Achievement Rating	56	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
84	Attitude Rating	57	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
85	Self-Worth Rating	58	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Reading Average:					
86	Time	59-61	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
87	Textbook Usage	62	1	0-9	Average/Week	Student Weekly Log
88	Concrete Materials Usage	63-64	2	00-99	Average/Week	Student Weekly Log
89	Achievement Rating	65	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
90	Attitude Rating	66	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
91	Self-Worth Rating	67	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
92	Blank	68-69	2			
	Card Number	79-80	2	02	Constant	

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	Student ID Repeated	1-2	2		See Card 1	
	Spelling					
93	Time	3-5	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Lo
94	Textbook Usage	6	1	0-9	Average/Week	Student Weekly Lo
95	Concrete Material Usage	7-8	2	00-99	Average/Week	Student Weekly Lo
96	Achievement Rating	9	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
97	Attitude Rating	10	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
98	Self-Worth Rating	11	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
	Communication					
99	Time	12-14	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Lo
100	Textbook Usage	15	1	0-9	Average/Week	Student Weekly Lo
101	Concrete Material Usage	16-17	2	00-99	Average/Week	Student Weekly Lo
102	Achievement Rating	18	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
103	Attitude Rating	19	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
104	Self-Worth Rating	20	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	SOCIAL RESPONSIBILITY					
	Directed Responsibility In Class					
105	Time	21-23	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
106	Textbook Usage	24	1	0-9	Average/Week	Student Weekly Log
107	Concrete Material Usage	25-26	2	00-99	Average/Week	Student Weekly Log
108	Achievement Rating	27	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
109	Attitude Rating	28	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
110	Self-Worth Rating	29	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Directed Responsibility Out of Class					
111	Time	30-32	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
112	Textbook Usage	33	1	0-9	Average/Week	Student Weekly Log
113	Concrete Material Usage	34-35	2	00-99	Average/Week	Student Weekly Log
114	Achievement Rating	36	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
115	Attitude Rating	37	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
116	Self-Worth Rating	38	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	Non Directed Responsibilities In Class					
117	Time	39-41	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Lo
118	Textbook Usage	42	1	0-9	Average/Week	Student Weekly Lo
119	Concrete Material Usage	43-44	2	00-99	Average/Week	Student Weekly Lo
120	Achievement Rating	45	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
121	Attitude Rating	46	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
122	Self-Worth Rating	47	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
	Non Directed Responsibilities Out of Class					
123	Time	48-50	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Lo
124	Textbook Usage	51	1	0-9	Average/Week	Student Weekly Lo
125	Concrete Material Usage	52-53	2	00-99	Average/Week	Student Weekly Lo
126	Achievement Rating	54	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
127	Attitude Rating	55	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo
128	Self-Worth Rating	56	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Lo

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	Social Responsibilities Average					
129	Time	57-59	3	001-999	Average/Week (hours) (F 3.1)	Student Weekly Log
130	Textbook Usage	60	1	0-9	Average/Week	Student Weekly Log
131	Concrete Material Usage	61-62	2	00-99	Average/Week	Student Weekly Log
132	Achievement Rating	63	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
133	Attitude Rating	64	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
134	Self-Worth Rating	65	1	1-3	1=Negative; 2=None; 3=Positive	Student Weekly Log
	Card Number	79-80	2	03	Constant	

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
VI	ACHIEVEMENT					
	STUDENT ID REPEATED	1-2	2		See Card I	
135	Language Vocabulary	3	1		1=Extremely Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average	Psychologist
136	Test Date of Language Vocabulary	4-7	4		Month and Year	Psychologist
137	Verbal IQ	8	1		1=Extremely Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average	Psychologist
138	Nonverbal IQ	9	1		1=Extremely Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average	Psychologist
139	Test Date Verbal/ Nonverbal	10-13	4		Month and Year	Psychologist
140	Reading Achievement	14-15	2	00-99	Raw Score	Psychologist
141	Mathematics Achievement	16-17	2	00-99	Raw Score	Psychologist
142	Test Date of Math/Reading	18-21	4	00-99	Month and Year	Psychologist
143	Present Reading Level	22	1	1-9	1=Preprimer; 2=Primer; 3=1st Grade; 4=2nd Grade; 5=3rd Grade; 6=4th Grade; 7=5th Grade; 8=6th Grade; 9=Above	TRS, Ques. 3

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	CTBS					
	Raw Scores					
144	Reading Word Recognition	23-24	2		(F 2.0)	CTBS Word Recognition II, Test 4
145	Addition	25-26	2		(F 2.0)	CTBS Computation, Test 8
146	Subtraction	27-28	2		(F 2.0)	CTBS Computation, Test 8
	PRE-TEST RESULTS					
	Raw Scores					
	Mathematics Pre-Test					
147	Basic Computations	29-30	2		(I 2)	Pre-Test Results
148	Decimals	31-32	2		(I 2)	Pre-Test Results
149	Time Clock	33-34	2		(I 2)	Pre-Test Results
150	Fractions	35-36	2		(I 2)	Pre-Test Results
151	Total Pre Score	37-38	2		(I 2)	Pre-Test Results

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	Reading Pre-Test					
152	Initial-Ending Sounds	39-40	2		(I 2)	Pre-Test Results
153	Vowel-Consonant Sounds	41-42	2		(I 2)	Pre-Test Results
154	Alphabetical Sequence	43-44	2		(I 2)	Pre-Test Results
155	Dictionary Skills	45-46	2		(I 2)	Pre-Test Results
156	Total Pre Score	47-48	2		(I 2)	Pre-Test Results
	Spelling Pre-Test					
157	Total Pre-Test Score	49-50	2		(I 2)	WRAT
	Communications Pre-Test					
158	Total Pre-Test Score	51-52	2		(I 2)	Pre-Test Results
	Social Responsibility					
159	Directed In Class Total Score	53-54	2		1=below average; 2=average; 3=above average	Pre-Test Results
160	Directed Out of Class Total Score	55-56	2		1=below average; 2=average; 3=above average	Pre-Test Results 310
161	Non-Directed In Class Total Score	57-58	2		1=below average; 2=average; 3=above average	Pre-Test Results

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
162	Non-Directed Out of Class Total Score	59-60	2		1=below average; 2=average; 3=above average	Pre-Test Results
163	Total Pre-Test Score	61-62	2		1=below average; 2=average; 3=above average	Pre-Test Results
	POST-TEST RESULTS					
	Mathematics Post-Test					
164	Basic Computations	63-64	2		(I 2)	Post-Test Results
165	Decimals	65-66	2		(I 2)	Post-Test Results
166	Time Clock	67-68	2		(I 2)	Post-Test Results
167	Fractions	69-70	2		(I 2)	Post-Test Results
168	Total Post-Test Score	71-72	2		(I 2)	Post-Test Results
	Card Number	79-80	2	04	Constant	

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V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
	STUDENT ID REPEATED	1-2	2		See Card 1	
	Reading Post-Test					
169	Initial-Ending Sounds	3-4	2		(I 2)	Post-Test Results
170	Vowel-Consonant Sounds	5-6	2		(I 2)	Post-Test Results
171	Alphabet Sequence	7-8	2		(I 2)	Post-Test Results
172	Dictionary Skills	9-10	2		(I 2)	Post-Test Results
173	Total Post-Test Score	11-12	2		(I 2)	Post-Test Results
	Spelling Post-Test					
174	Total Post-Test Score	13-14	2		(I 2)	WRAT
	Communications Post-Test					
175	Total Post Test Score	15-16	2		(I 2)	Post-Test Results
	Social Responsibility Post Test					
176	Directed In Class	17-18	2		(I 2)	Post-Test Results
177	Directed Out of Class	19-20	2		(I 2)	Post-Test Results

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
178	Non-Directed In Class	21-22	2		(I 2)	Post-Test Results
179	Non-Directed Out of Class	23-24	2		(I 2)	Post-Test Results
180	Total Post-Test Score	25-26	2		(I 2)	Post-Test Results
	Pre-Post Gain Scores					
	Mathematics Gain					
181	Basic Computations	27-29	3		(I3)	Calculated
182	Decimals	30-32	3		(I3)	Calculated
183	Time Clock	33-35	3		(I3)	Calculated
184	Fractions	36-38	3		(I3)	Calculated
185	Total Gain	39-41	3		(I3) Total Post-Total Pre=Gain	Calculated
	Reading Gain					
186	Initial-Ending Sounds	42-44	3		(I3)	Calculated
187	Vowel-Consonant Sounds	45-47	3		(I3)	Calculated
188	Alphabetical Sequence	48-50	3		(I3)	Calculated

V. NO.	VARIABLE	CODE (LEADING ZEROS ARE LEFT BLANK=0) Col. Assignments right justified	Field Width	Range	CODE EXPLANATION	SOURCE (FORM)
189	Dictionary Skills	51-53	3		(I3)	Calculated
190	Total Gain Spelling Gain	54-56	3		(I3) Total Post-Total Pre=Gain	Calculated
191	Total Gain Communication Gain	57-59	3		(I3) Total Post-Total Pre=Gain	Calculated
192	Total Gain Social Responsibility Gain	60-62	3		(I3) Total Post-Total Pre=Gain	Calculated
193	Directed In Class Total Score	63-64	2		(I2)	Calculated
194	Directed Out of Class Total Score	65-66	2		(I2)	Calculated
195	Non Directed In Class Total Score	67-68	2		(I2)	Calculated
196	Non Directed Out of Class Score	69-70	2		(I2)	Calculated
197	Total Gain	71-73	3		(I3) Total Post-Total Pre=Gain	Calculated
	Card Number	79-80	2	05	Constant	

Standardized scores (Z) on each achievement variable are computer calculated

356

APPENDIX D

INSTRUMENTATION

D.1 Pre-Post Test

D.2 Omnibus Rating Scale

D.3 Teacher Rating Scale

D.4 Teacher Questionnaire

D.5 Student Weekly Report

D.6 Summary Reports

D.1: Pre-Post Test

Reading Subtest

Name_____

READING

FOR EACH QUESTION PLEASE CIRCLE THE CORRECT ANSWER

EXAMPLE

Circle the letter that comes before the others in the alphabet

Z (A) M X

The correct answer is A. Notice that A has been circled.

1. Circle the letter that comes <u>before</u> the others in the alphabet

Y S C P

---

2. Circle the letter that comes <u>before</u> the others in the alphabet

d b m r

---

3. Circle the word that comes <u>before</u> the others in the alphabet

EAGLE GOAT OWL FOX

---

4. Circle the list that is in alphabetical order

hay	his	house	hay
hen	hen	horse	his
his	hay	his	hen
horse	house	hen	horse

---

5. Circle the word that comes between BALE and BANK in alphabetical order

BAIT BAKE BAT BAMBOO

6. Circle the word that begins with the same letter as BLUE

DONE VIEW BOAT POP

7. Circle the word that ends with the same letter as FIRST

SPARK CAST SPILL INSTEAD

8. Circle the word that ends with the same sound as GLUE

GLOW WEST CLUE

9. Circle the word that <u>begins</u> with the <u>same sound</u> as <u>CAT</u>

CAST CHIEF SAND

10. Circle the word that <u>begins</u> with the <u>same sound</u> as <u>GIANT</u>

JOKE BIG GAVE

11. Circle the letter that is <u>silent</u> in the word <u>KNELT</u>

K N L

12. Circle the letter that has the <u>same sound</u> as <u>C</u> in <u>CENT</u>

CIRCUS CAKE COOL

13. Circle the word that has the same sound as OU in MOUTH

TOWN SOUP SHOW

14. Circle the word that has the same ending sound as X in BOX

MAKES CATCH CLOCK

15. Circle the word that has the same sound as I in DID

WITH HIDE FINE

16. Circle the word that has the same sound as U in FUN

COUGH TOUGH BOUGH

17. Circle the word that has the same sound as OI in OIL

FALL JOY CROWD

18. Circle the word that has the same sound as A in LATE

SLEIGH TAUGHT DOUGH

19. Circle the word that has the same sound as E in SHE

SHELL PEN PEOPLE

20. Circle how many syllables are in the word UNDERCOVER

1 2 3 4

21. Circle the word that has the accent on the first syllable

CIRCUS UNTIL EXCITE REFER

22. Circle the word which is on the dictionary page with guide words PASTE - PATH

PARTY PASS PATCH PATIO

23. Circle the reference source you would use to find books about butterflies

CARD CATALOGUE DICTIONARY

ENCYCLOPEDIA

24. Circle the correctly pronounced word that completes the sentence

Put the groceries in a large _____, please.

SŌK SŎK SĀK SĂK

This is a dictionary entry defining the word BEAT.

> beat (bēt) 1. v. To hit, strike, or whip again and again.
> 2. v. To overcome or defeat.
> 3. n. Regular path or course of a policeman or watchman.
> 4. U.S. Informal. adj. Tired, exhausted.

The word beat is used in the two sentences below. Circle the dictionary definition number that best defines the word as it is used in the sentences.

25. The boys looked beat after their long hike.

4 2 3 1

26. Nancy likes to beat the batter for pancakes.

4 3 2 1

D.I: PRE-POST TEST

Mathematics Subtest

Name_____

MATHEMATICS

FOR EACH QUESTION PLEASE CIRCLE THE CORRECT ANSWER

EXAMPLE

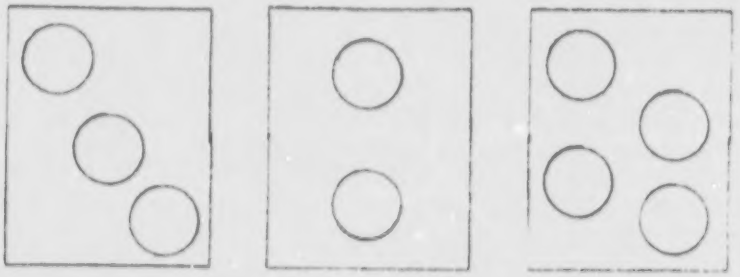
Add:

$$\begin{array}{r} 3 \\ +1 \\ \hline \end{array}$$

2 5 (4) 3

The correct answer is 4. Notice that the 4 has been circled.

1. Circle the picture that has three balls.



2. Add: 7
+2

5 9 10 6

3. Subtract: 2 - 0 = ?

0 2 4 1

4. Add: 4 ones
+3 ones
? ones

1 7 6 2

1

5. Add:
$$\begin{array}{r} 34 \\ +\ 5 \\ \hline \end{array}$$

9 39 29 170

---

6. Subtract: $10 - ? = 4$

6 4 14 16

---

7. Subtract: $785 - 154 = ?$

639 939 631 574

---

8. Add: $615 + 71 = ?$

697 664 584 686

---

9. The 7 in the numeral 7189 stands for

70 7 7000 700

10. Subtract:
$$\begin{array}{r} 38 \\ -\ 9 \\ \hline \end{array}$$

29 47 39 37

11. Add: 17 + 5 = 9 + ?

4 13 12 11

12. Subtract:
$$\begin{array}{r} 62 \\ -27 \\ \hline \end{array}$$

85 45 89 35

13. Subtract: 427 - 18 = ?

419 445 409 412

---

14. Add: 1365 + 890 = ?

1951 2150 2261 106

---

15. Jill has 7 balls. Bob has 8 balls. Kevin has 11 balls. Jane has 5 balls. All together how many balls do the children have?

9 31 21 11

---

16. Multiply: 12 x 3 = ?

9 36 15 24

---

17. Divide: $9 \div 3 = ?$

2 27 12 3

---

18. Divide: $2\overline{)48}$

24 12 4 26

---

19. Sue saw 8 planes fly every hour. How many planes did she see in 5 hours?

13 35 40 3

---

20. Multiply: $2 \times 3 \times 4 = ?$

8 12 24 9

---

21. Divide: $3\overline{)10}$

3R1 3 2R2 4

---

22. Multiply: $\begin{array}{r} 87 \\ \times 59 \\ \hline \end{array}$

5133 4073 5463 7135

---

23. Divide: $4\overline{)278}$

70 67R3 69R2 65R1

---

24. Multiply: $\begin{array}{r} 4208 \\ \times\ 235 \\ \hline \end{array}$

888,880 100,580 987,880 988,880

6

25. There are 32 red jelly beans and 24 black jelly beans for 8 children. How many red and black jelly beans together are there for each child?

1 4 9 3

---

26. Add: 1.4 + .7 = ?

.21 1.47 2.1 8.4

---

27 Add: .23
+.45

.0068 .68 6.8 68.0

---

28. Subtract: .9
-.6

.03 .3 1.5 3.0

---

29. A pen costs $.30. If you want to buy 2 pens and have only $.50, how much more do you need?

$.05 $.20 $.10 $1.10

30. Circle the time as shown by the clock hands

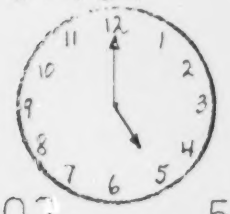
3:00 12:00 6:00 9:00

31. Circle the time shown by the clock hands

4:25 6:03 3:06 3:30

8

32. Circle the time 2 hours later than shown on the clock

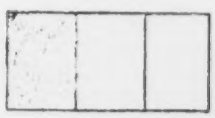


2:00 5:02 5:10 7:00

33. Circle the number of hours in 2 days

12 24 96 48

34. Circle the fraction that names the shaded part



$\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$ $\frac{2}{3}$

35. Circle the fraction which is the same as $\frac{2}{3}$

$\frac{3}{15}$ $\frac{1}{4}$ $\frac{7}{12}$ $\frac{4}{6}$

36. Circle the fraction which is larger than $\frac{2}{3}$

$\frac{7}{9}$ $\frac{1}{5}$ $\frac{7}{12}$ $\frac{1}{2}$

---

37. Add:

$\frac{1}{5} + \frac{2}{5} = ?$

$\frac{3}{24}$ $\frac{3}{10}$ $\frac{2}{5}$ $\frac{3}{5}$

---

38. Add:

$1\frac{1}{2} + 1\frac{1}{2} = ?$

$\frac{4}{2}$ $2\frac{1}{2}$ 3 44

---

39. Subtract: $\frac{8}{12} - \frac{3}{12} = ?$

$\frac{1}{3}$ $\frac{11}{12}$ $\frac{5}{12}$ $\frac{11}{24}$

---

40. Subtract:

$$3\frac{4}{7}$$
$$-1\frac{1}{7}$$

$2\frac{3}{0}$ $2\frac{3}{14}$ $2\frac{3}{7}$ $4\frac{5}{7}$

---

41. Add: $\frac{1}{4} + \frac{5}{8} = ?$

$\frac{6}{12}$ $\frac{5}{8}$ $\frac{6}{8}$ $\frac{7}{8}$

11

42. Subtract: $\frac{5}{8} - \frac{1}{4} = ?$

$\frac{2}{8}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{4}{4}$

---

43. Multiply: $\frac{1}{4} \times \frac{1}{3} = ?$

$\frac{1}{12}$ $\frac{2}{12}$ $\frac{1}{7}$ $\frac{2}{7}$

---

44. Divide: $\frac{1}{3} \div \frac{1}{2} = ?$

$\frac{1}{6}$ $\frac{2}{3}$ $\frac{3}{2}$ $\frac{6}{1}$

---

45. Multiply: $\frac{1}{5} \times 4 = ?$

$\frac{1}{20}$ $\frac{4}{5}$ $\frac{5}{4}$ $\frac{20}{1}$

46. Divide: $3 \div \frac{1}{2} = ?$

$\frac{3}{6}$ $\frac{3}{2}$ 3 6

D.1: Pre-Post Test

Communication Subtest

D.I: PRE-POST TEST IN COMMUNICATION SKILLS

Directions: Students are to write in their best handwriting, either manuscript or cursive, as rapidly as possible the following four items. One minute is allowed for each item. If the student finishes early, he or she is to repeat the writing task.

1. Alphabet

2. Name (first and last)

3. Five words: selected by the teacher

4. Paragraph: (dictated by teacher)

Today is Tuesday, March 30, 1976. We are now able to write quite well. We know that practice will help us to improve our handwriting.

D.I: Pre-Post Test

Social Responsibility Subtest

D.1: PRE-POST TEST IN SOCIAL RESPONSIBILITY

_____
Student's Name

SOCIAL DEVELOPMENT RESPONSIBILITIES:	COMPLETES RESPONSIBILITY CORRECTLY		
	Below Average	Average (for age)	Above Average
1.0 Directed In-Class Responsibility 1.1 Name on paper			
1.2 Follow classroom rules			
1.3 Follow directions			
2.0 Directed Out-of-Class Responsibilities Type Responsibility: 2.1 Work with secretary, custodian, or principal			
3.0 Non-Directed In-Class Responsibility Type Responsibility: 3.1 Work assignment on an individual basis			
3.2 Can change activities without teacher direction			
3.3 Cleans up after activities			
4.0 Non-Directed Out-Of-Class Responsibility Meets responsibility: 4.1 Cafeteria			
4.2 Playground			

D.2: Pre-Post Test

Omnibus Rating Scale

D.2: OMNIBUS RATING SCALE

Student Name _____

Student Number _____

OMNIBUS RATING SCALE
LEARNING MODE VARIABLES

Variable	Code		Source
I. Dominant Learning Modes	No	Yes	
1.1 Auditory			Psychologist
1.2 Visual			Psychologist
1.3 Kinesthetic			Psychologist
	1=Aud.; 2=Vis.; 3=Kin.		
1.4 Code			

II. Specialized Learning Modes	Ext. Below	Sev. Below	Below Avg.	Avg.	Above Avg.	
2.1 Listening						TRS, Ques. 3
2.2 Social Adaptive Behavior						TRS, Ques. 4
2.3 Approach to Learning Impulsive-Reflective						TRS, Ques. 5

D.2: OMNIBUS RATING SCALE

Student Name _____

Student Number _____

OMNIBUS RATING SCALE
ACHIEVEMENT VARIABLES

Variable	Code					Source
	Ext. Below	Sev. Below	Below Avg.	Avg.	Above Avg.	
1. Language Vocabulary						Psychologist
2. Test Date of Language Vocabulary						Psychologist
3. Verbal IQ						Psychologist
4. Nonverbal IQ						Psychologist
5. Test Date of Verbal/ Nonverbal						Psychologist

	Raw Scores	
6. Reading Achievement		Psychologist
7. Mathematics Achievement		Psychologist
8. Test Date of Reading/ Math		Psychologist
9. Present Reading Level		TRS, Ques. 6

D.3: Teacher Rating Scale

D.3: TEACHER RATING SCALE

Student's Name _____

1. The student's need to use manipulative teaching aids and concrete materials such as blocks, is: 1) completely dependent; 2) more dependent than average regular student; 3) same as average regular student, or 4) less dependent than average regular student.

2. The student best learns (or can only learn) spelling and reading through the tracing approach rather than through a phonics or visual approach: 1) completely dependent; 2) more dependent than average regular student; 3) same as average regular student; or 4) less dependent than average regular student.

3. The student's listening skills in understanding directions specifically for a learning task are: 1) severely below average of regular student; 2) below average of regular student; 3) same as average regular student; or 4) above average of regular student.

4. The student's capability of functioning socially in a low-demand competitive environment with some support and supervision is: 1) severely below average regular student; 2) below average student; 3) same as average regular student; or 4) above average student (social relationships include being cooperative, considerate and shares with peers and adults in a positive manner both in the classroom and playground).

5. The student's approach to learning is: 1) extremely impulsive; 2) frequently acts with little forethought; 3) same as average regular student; or 4) is reflective and thinks through things before acting.

6. The student's present reading level is: 1) pre-primer; 2) primer; 3) 1st grade; 4) 2nd grade; 5) 3rd grade; 6) 4th grade; 7) 5th grade; 8) 6th grade; 9) above.

D.4: Teacher Questionnaire

D.4: TEACHER QUESTIONNAIRE

Total Years Teaching Experience

In and out of OMSD _____

Total Years Teaching Experience in Special Education

In and out of OMSD _____

In OMSD _____

Number of Years of Education Above BA _____

Age in Years _____

Educational Involvement:

Participate in education policy and planning yes _____ no _____

Attend conferences yes _____ no _____

Member of professional organizations yes _____ no _____

D.5: Student Weekly Log

D.5: STUDENT WEEKLY LOG

Weekly Log for _____ Date _____ Number days present this week _____

Student Objectives in:	Instruction		Development		
	Total Time (Minutes)	Textbooks Materials	Achievement + 0 -	Attitude + 0 -	Self-Worth + 0 -
1.0 Mathematical Concepts					
1.1 Basic Computations					
1.2 Time Clock					
1.3 Decimals					
1.4 Fractions					
2.0 Reading Concepts					
2.1 Initial-Ending Sounds					
2.2 Vowel-Consonant Sounds					
2.3 Alphabetical Sequence					
2.4 Dictionary Usage					
3.0 Spelling					
4.0 Communication Skill Concepts					
4.1 Letters of Alphabet					
4.2 Name					
4.3 Spelling Words (5)					
5.0 Social Development Concepts					
5.1 Directed In-Class					
5.2 Directed Out-Of-Class					
5.3 Non-Directed In-Class					
5.4 Non-Directed Out-Of-Class					

D.6: Summary Report

D.6: SUMMARY REPORT
MATHEMATICS SUMMARIZED WEEKLY LOG FOR _____
Student

	Time Avg./Wk. B.C. D. T.C. F.	Textbook Usage Avg./Wk. Count B.C. D. T.C. F.	Concrete Materials Avg./Wk. Count B.C. D. T.C. F.	Achievement Avg./Wk. B.C. D. T.C. F.	Attitude Avg./Wk. B.C. D. T.C. F.	Self-Worth Avg./Wk. B.C. D. T.C. F.
Week 1						
Week 2						
Week 3						
Week 4						
Week 5						
Week 6						
Week 7						
Week 8						
Week 9						
Week 10						
Week 11						
Week 12						
Week 13						
Week 14						
Week 15						
Total Math Average Week						

D.6: SUMMARY REPORT

READING SUMMARIZED WEEKLY LOG FOR _____
Student

	Time Avg./Wk. V.C.	I.E.	A.S.	D.S.	Textbook Usage Avg.Wk. Count V.C.	I.E	A.S.	D.S.	Concrete Materials Avg./Wk. Count V.C.	I.E.	A.S.	D.S.	Achievement Avg./Wk. V.C.	I.E.	A.S.	D.S.	Attitude Avg./Wk. V.C.	I.E.	A.S.	D.S.	Self-Worth Avg./Wk. V.C.	I.E.	A.S.	D.
Week 1																								
Week 2																								
Week 3																								
Week 4																								
Week 5																								
Week 6																								
Week 7																								
Week 8																								
Week 9																								
Week 10																								
Week 11																								
Week 12																								
Week 13																								
Week 14																								
Week 15																								
Total Read. Average Week																								

D.6: SUMMARY REPORT

SPELLING SUMMARIZED WEEKLY LOG FOR _____
Student

	Time Avg./Wk. Spelling	Textbook Usage Avg./Wk. Count Spelling	Concrete Materials Avg./Wk. Count Spelling	Achievement Avg./Wk. Spelling	Attitude Avg./Wk. Spelling	Self-Worth Avg./Wk. Spelling
Week 1						
Week 2						
Week 3						
Week 4						
Week 5						
Week 6						
Week 7						
Week 8						
Week 9						
Week 10						
Week 11						
Week 12						
Week 13						
Week 14						
Week 15						
Total Spelling Average Week						

D.6: SUMMARY REPORT

COMMUNICATION SKILLS SUMMARIZED WEEKLY LOG FOR _____
Student

	Time Avg./Wk. L. N. S.W. P.	Textbook Usage Avg./Wk. Count L. N. S.W. P.	Concrete Materials Avg./Wk. Count L. N. S.W. P.	Achievement Avg./Wk. L. N. S.W. P.	Attitude Avg./Wk. L. N. S.W. P.	Self-Worth Avg./Wk. L. N. S.W. P.
Week 1						
Week 2						
Week 3						
Week 4						
Week 5						
Week 6						
Week 7						
Week 8						
Week 9						
Week 10						
Week 11						
Week 12						
Week 13						
Week 14						
Week 15						
Tot. Com. Average Week						

D.6: SUMMARY REPORT

SOCIAL DEVELOPMENT SUMMARIZED WEEKLY LOG FOR _____
Student

	Time Avg./Wk.				Textbook Usage Avg./Wk. Count				Concrete Materials Avg./Wk. Count				Achievement Avg./Wk.				Attitude Avg./Wk.				Self-Worth Avg./Wk.			
	DI	DO	NDI	NDO	DI	DO	NDI	NDO	DI	DO	NDI	NDO	DI	DO	NDI	NDO	DI	DO	NDI	NDO	DI	DO	NDI	NDO
Week 1																								
Week 2																								
Week 3																								
Week 4																								
Week 5																								
Week 6																								
Week 7																								
Week 8																								
Week 9																								
Week 10																								
Week 11																								
Week 12																								
Week 13																								
Week 14																								
Week 15																								
Total																								
Average Week																								

APPENDIX E

E.1 EMR UNIVARIATE DESCRIPTIVE STATISTICS

E.2 EH UNIVARIATE DESCRIPTIVE STATISTICS

TABLE E.1

EMR Univariate Descriptive Statistics on 42 Variables (N=26)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
	STATUS:			
1	Classroom Type	1.58	0.50	1=control; 2=experimental
	HOME BACKGROUND:			
2	Age	161.92	7.43	(1975-Birth Year) x 12 + (11-Birth Month)
3	Sex	1.38	0.50	1=male; 2=female
	ETHNICITY:			
4	Spanish Surname	1.42	0.50	1=no; 2=yes
5	White	1.50	0.51	1=no; 2=yes
6	Black	1.08	0.27	1=no; 2=yes
7	Oriental	1.00	0.00	1=no; 2=yes
8	American Indian	1.00	0.00	1=no; 2=yes
9	All Other	1.00	0.00	1=no; 2=yes
	LEARNING STYLE-MODE:			
10	Auditory	1.40	0.50	1=not dominant; 2=dominant
11	Visual	1.40	0.50	1=not dominant; 2=dominant
12	Kinesthetic	1.20	0.41	1=not dominant; 2=dominant

TABLE E.1 (Continued)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
13	Social Adaptive Behavior	3.23	0.91	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average
14	Approach to Learning	3.08	0.84	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average
	EDUCATIONAL:			
15	ADA	67.50	3.77	Total Count in Days (Nov. 1, 1975 - March 31, 1976)
16	Total Years in EH, EMR, LDG Program	5.58	1.98	Count (K to Present)
	PROGRAM:			
17	Average Mathematics Time	5.12	0.91	Average Hours/Week
18	Average Mathematics Textbook Usage	2.04	0.34	Average Count/Week
19	Average Mathematics Concrete Materials Usage	4.00	0.69	Average Count/Week
20	Average Reading Time	4.62	1.88	Average Hours/Week
21	Average Reading Textbook Usage	2.08	0.48	Average Count/Week

TABLE E.1 (continued)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
22	Average Reading Concrete Materials Usage	3.50	2.12	Average Count/Week
23	Average Spelling Time	1.62	0.98	Average Hours/Week
24	Average Spelling Textbook Usage	0.08	0.27	Average Count/Week
25	Average Spelling Concrete Materials Usage	0.96	0.53	Average Count/Week
26	Average Communication Time	3.46	1.88	Average Hours/Week
27	Average Communication Textbook Usage	1.58	0.76	Average Count/Week
28	Average Communication Concrete Materials Usage	2.92	1.38	Average Count/Week
29	Average Social Responsibility Time	3.15	1.38	Average Hours/Week
30	Average Social Responsibility Textbook Usage	1.46	1.33	Average Count/Week
31	Average Social Responsibility Concrete Materials Usage	1.69	2.02	Average Count/Week
	ACHIEVEMENT:			
32	Language Vocabulary	1.96	0.82	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average

TABLE E.1 (continued)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
33	Verbal IQ	2.42	0.58	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average
34	Nonverbal IQ	2.50	0.76	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average
35	Reading Achievement	35.24*	13.09*	Raw Score
36	Mathematics Achievement	24.21**	5.63**	Raw Score
37	Present Reading Level	3.50	1.96	1=Pre-Primer; 2=Primer; 3=1st Grade; 4=2nd Grade; 5=3rd Grade; 6=4th Grade; 7=5th Grade; 8=6th Grade; 9=Above
38	Total Mathematics Gain	3.50	5.94	Total Post-Total Pre=Gain
39	Total Reading Gain	0.50	3.80	Total Post-Total Pre=Gain
40	Total Spelling Gain	-0.65	2.28	Total Post-Total Pre=Gain
41	Total Communication Gain	0.54	12.11	Total Post-Total Pre=Gain
42	Total Social Responsibility Gain	-0.44	6.72	Total Post-Total Pre=Gain

* N=25
**N=24

TABLE E.2

EH Univariate Descriptive Statistics on 42 Variables (N=17)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
	STATUS:			
1	Classroom Type	1.47	0.51	1=control; 2=experimental
	HOME BACKGROUND:			
2	Age	116.24	18.50	(1975-Birth Year) x 12 +(11-Birth Month)
3	Sex	1.18	0.33	1 male; 2=female
	ETHNICITY:			
4	Spanish Surname	1.06	0.24	1=no; 2=yes
5	White	1.88	0.33	1=no; 2=yes
6	Black	1.06	0.24	1=no; 2=yes
7	Oriental	1.00	0.00	1=no; 2=yes
8	American Indian	1.00	0.00	1=no; 2=yes
9	All Other	1.00	0.00	1=no; 2=yes
	LEARNING STYLE-MODE:			
10	Auditory	1.41	0.51	1=not dominant; 2=dominant
11	Visual	1.18	0.39	1=not dominant; 2=dominant
12	Kinesthetic	1.41	0.51	1=not dominant; 2=dominant

TABLE E.2 (continued)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
13	Social Adaptive Behavior	2.76	0.90	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5 Above Average
14	Approach to Learning	3.18	0.53	1=Ext. Below; 2=Severely Below; 3-Below Average; 4=Average; 5=Above Average
	EDUCATIONAL:			
15	ADA	67.29	4.30	Total Count in Days (November 1, 1975-March 31, 1976)
16	Total Years in EH, EMR, LDG Program	2.53	1.18	Count (K to Present)
	PROGRAM:			
17	Average Mathematics Time	6.82	12.46	Average Hours/Week
18	Average Mathematics Textbook Usage	1.41	0.51	Average Count/Week
19	Average Mathematics Concrete Materials Usage	1.76	0.90	Average Count/Week
20	Average Reading Time	4.88	0.96	Average Hours/Week
21	Average Reading Textbook Usage	6.00	1.79	Average Count/Week

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TABLE E.2 (continued)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
22	Average Reading Concrete Materials Usage	0.13	0.50	Average Count/Week
23	Average Spelling Time	2.12	3.64	Average Hours/Week
24	Average Spelling Textbook Usage	0.88	0.33	Average Count/Week
25	Average Spelling Concrete Materials Usage	0.00	0.00	Average Count/Week
26	Average Communication Time	0.88	0.99	Average Hours/Week
27	Average Communication Textbook Usage	0.36	0.49	Average Count/Week
28	Average Communication Concrete Materials Usage	0.00	0.00	Average Count/Week
29	Average Social Responsibility Time	1.59	0.62	Average Hours/Week
30	Average Social Responsibility Textbook Usage	4.41	4.11	Average Count/Week
31	Average Social Responsibility Concrete Materials Usage	0.12	0.49	Average Count/Week
	ACHIEVEMENT:			
32	Language Vocabulary	3.82	0.95	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average

TABLE E.2 (Continued)

VARIABLE Number	Name	Mean	Standard Deviation	Code Value
33	Verbal IQ	3.59	0.62	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average
34	Nonverbal IQ	3.24	0.90	1=Ext. Below; 2=Severely Below; 3=Below Average; 4=Average; 5=Above Average
35	Reading Achievement	38.65	14.50	Raw Score
36	Mathematics Achievement *	26.07	4.23	Raw Score
37	Present Reading Level	3.35	1.73	1=Pre-Primer; 2=Primer; 3=1st Grade; 4=2nd Grade; 5=3rd Grade; 6=4th Grade; 7=5th Grade; 8=6th Grade; 9=Above
38	Total Mathematics Gain	0.71	4.73	Total Post-Total Pre=Gain
39	Total Reading Gain	2.53	3.95	Total Post-Total Pre=Gain
40	Total Spelling Gain	1.06	1.75	Total Post-Total Pre=Gain
41	Total Communication Gain	6.76	11.03	Total Post-Total Pre=Gain
42	Total Social Responsibility Gain	-0.35	2.09	Total Post-Total Pre=Gain

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